

## **APPENDIX A**

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### **Notice of Preparation and Initial Study**



Ernest Orlando Lawrence  
Berkeley National Laboratory

March 15, 2005

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State of California  
Office of Planning and Research  
1400 Tenth Street  
Sacramento, CA 95814

**NOTICE OF PREPARATION  
DRAFT ENVIRONMENTAL IMPACT REPORT**

**Project Title:** Building 51 and Bevatron Demolition  
**Lead Agency:** University of California, Lawrence Berkeley National Laboratory  
**Address:** One Cyclotron Road, Berkeley, California 94720  
**County:** Alameda County  
**Contact Person:** Daniel Kevin  
Environmental Planning Group  
Lawrence Berkeley National Laboratory  
One Cyclotron Road, MS 90K0198  
Berkeley, California 94720

The University of California will be the Lead Agency and will prepare an Environmental Impact Report (EIR) for the proposed Demolition of Building 51 and the Bevatron for Lawrence Berkeley National Laboratory (LBNL, Berkeley Lab, or "the Laboratory"), located in the city of Berkeley, Alameda County, California.

The attached Environmental Checklist – Initial Study includes a description of the project and identifies the potential environmental issues that will be addressed in the Draft EIR. LBNL will hold a Public Scoping Meeting for the EIR on March 31, 2005 at the North Berkeley Senior Center, 1901 Hearst Avenue, Berkeley, from 6:30 p.m. to 8:30 p.m. (Attachment A). A copy of these documents will be placed on the following website:

<http://www.lbl.gov/Community/env-rev-docs.html>

We request your views as to the scope and content of the environmental information on the proposed project. Your response must be received by April 16, 2005. Your name should be included with your response.

Please send your response to: Daniel Kevin, LBNL NEPA/CEQA Program  
Lawrence Berkeley National Laboratory, 90K0198  
One Cyclotron Road, Berkeley, California 94720

If you have any questions about this process, please contact Daniel Kevin at the above address or at [DJKevin@lbl.gov](mailto:DJKevin@lbl.gov).

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Laura Chen, Head, Facilities Planning Group  
Lawrence Berkeley National Laboratory

Attachments: Environmental Checklist – Initial Study  
Public Scoping Meeting Announcement

cc: LBNL CEQA Agency and Public Mailing List

State Clearinghouse

CA Air Resources Board, (vacant) Chairman; Catherine Witherspoon, Executive Officer  
CA Department of Fish and Game, Ryan Broddrick, Director  
CA Health & Human Resources Agency, Kim Belshé, Secretary  
CA Department of Health Services, Sandra Shewry, Director; Edgar Bailey, Chief, Radiological Health Branch,  
CA Department of Water Resources, Lester A. Snow, Director  
CA Environmental Protection Agency, Dr. Alan C. Lloyd, Secretary,  
CA EPA, Department of Toxic Substances Control, B.B. Blevins, Director;  
Mohindar Sandu, Manager Field Office, Waqar Ahmad, Project Manager  
CA State Resources Agency, Mike Chrisman, Secretary  
CA State Water Resources Control Board, Arthur G. Baggett, Chair; Celeste Cantú, Executive Director  
CalTrans, Will Kempton, Director; Bijan Sartipi, District 4 Director; Gary Adams, Chief of Planning;

Federal Agencies

U.S. Environmental Protection Agency, Region 9, Wayne Nastri, Regional Administrator, Enrique Manzanilla, Director Communities & Ecosystems Division, Michael Bandrowski Manager Radiation & Compliance Assurance  
U.S. Dept. of Interior, Fish and Wildlife Service, David Allen, Pacific Region Director; Sacramento Fish & Wildlife Field Office, Wayne White, Supervisor,  
U.S. Department of Energy, Berkeley Site Office, Aundra Richards, Site Manager; Carl Schwab, Environmental Affairs  
U.S. Department of Energy, Oak Ridge Office, James Elmore, David Page

Regional/County Agencies

Alameda County, Supervisor District 5, Keith Carson  
Alameda County LAFCO, Lou Ann Texeira, Executive Officer  
Alameda County, Susan Muranishi, County Administrator  
Alameda County, Health Care Agency, Public Health Officer, Anthony B.Iton, M.D  
Alameda County, Clerk Board of Supervisors, Crystal Hishida  
Alameda County Community Development Agency Planning Department, James Sorenson, Director

Metropolitan Transportation Commission Steve Heminger, Executive Director  
Association of Bay Area Governments, Henry Gardner  
Bay Area Air Quality Management District, Jack Broadbent  
Contra Costa County Department of Health Services, Hazardous Materials Section, Andy Parsons  
East Bay Municipal Utilities District, Dennis Diemer, General Manager  
East Bay Regional Park District, Pat O'Brien, General Manager  
Regional Water Quality Control Board, San Francisco Division, Bruce H. Wolf, Executive Officer

City of Berkeley

City of Berkeley, City Clerk, Sara Cox  
City of Berkeley, City Manager, Phil Kamlarz,  
City of Berkeley, City Attorney's Office, Manuela Albuquerque  
City of Berkeley, Mayor Tom Bates  
City of Berkeley, Council Members Moore, Capitelli, Maio, Olds, Anderson, Spring, Worthington, Wozniak  
City of Berkeley, Planning Department, Dan Marks, Director  
City of Berkeley, Toxics Management Division, Dr. Nabil Al-Hadithy  
City of Berkeley, Energy Officer, Neal DeSnoo  
City of Berkeley, Peace & Justice Commission Secretary, Manuel Hector, Jr.  
City of Berkeley, Parks & Waterfront Commission Secretary, Jay Kelekian  
City of Berkeley, Solid Waste Management Commission Secretary, Tania Levy  
City of Berkeley, Police Chief Roy Meissner  
City of Berkeley, Fire Department, Deby Pryor Chief;  
City of Berkeley, Peter Hilliard, Transportation Manager

City of Oakland

City of Oakland Mayor Jerry Brown  
City of Oakland, District 1, Jane Brunner, Councilmember  
City of Oakland, City Attorney John Russo  
City of Oakland, CEDA Planning and Zoning Division, Claudia Cappio, Development Director  
City of Oakland, CEDA Administration, Dan Vanderpriem, Director of Redevelopment, Economic Development and Housing  
Oakland City Clerk's Office, Ceda Floyd  
City of Oakland, Deborah Edgerly, City Administrator  
City of Oakland, Fire Department, Daniel Farrell, Fire Chief,.

City of Albany

City of Albany City Clerk Jacqueline Bucholz  
City of Albany Administrator, Beth Pollard

Kensington

Kensington Fire Protection District, Mark Scott, Fire Chief

University of California Office of the President (UCOP)

UCOP, University Affairs, Bruce Darling, Senior Vice President  
UCOP, Laboratory Management, S. Robert Foley, Vice President  
UCOP, Laboratory Environment Safety Health, Environment Restoration & Waste Management, Howard Hatayama, Director EHS & ERWM  
UCOP Office of General Counsel, Joseph Jaramillo  
UCOP Facilities Administration, Michael Bocchichio, Assistant Vice President  
UCOP Office of Planning, Design, & Construction, John Zimmermann, Director

UC Berkeley

UC Berkeley, Chancellor Robert J. Birgeneau  
UC Berkeley, Exec. Vice Chancellor & Provost, Paul R. Gray  
UC Berkeley, Vice Chancellor for Research, Beth Burnside  
UC Berkeley, Acting Vice Chancellor Business and Administrative Services, Steve Lustig  
UC Berkeley, Vice Chancellor Facilities Services, Edwards J. Denton  
UC Berkeley, Physical and Environmental Planning, Tom Lollini, Director  
UC Berkeley, Chancellor's Adv. Committee on Strawberry Creek, G. Mathias Kondolf  
UC Berkeley, EH&S Division, Mark Frieberg, Director  
UC Berkeley, E H & S Radiation Safety, Paul Lavelly, Radiation Safety Officer  
UC Berkeley, Community Relations, Irene Hegarty, Director  
UC Berkeley, Lawrence Hall of Science, Elizabeth Stage, Director  
UC Berkeley, Botanical Garden, Dr. Paul Licht, Director  
UC Berkeley, Police Chief, Victoria Harrison  
UC Berkeley, Campus Landscape Architect, James Horner  
UC Berkeley, Emergency Services Manager, Tom Klatt

Organizations

Berkeley Association of Realtors, Terry Murphy, Association Executive  
Berkeley Chamber of Commerce, Rachel Rupert, President & CEO  
Campus Parnassus Neighborhood Association, Eric Arens  
Committee to Minimize Toxic Waste, Pam Sihvola, Co-Chair  
Community Environmental Advisory Commission, Mike Toffel, Chair  
Council of Neighborhood Associations, Marie Bowman, President  
Euclid-LeConte Neighbors, Jim Sharp  
League of Women Voters, Sherry Smith, President  
Tibetan Nyingma Institute, Abby Blum, Program Director  
Oakland Metropolitan Chamber of Commerce, Joseph Haraburda, President & CEO  
Panoramic Neighborhood Association, Jerry Wachtel, President  
Urban Creeks Council, Steve Donnelly, Executive Director  
Friends of Strawberry Creek, Jennifer Pearson

Individuals and Neighbors

(Various)

**Attachment A: Public Scoping Meeting**

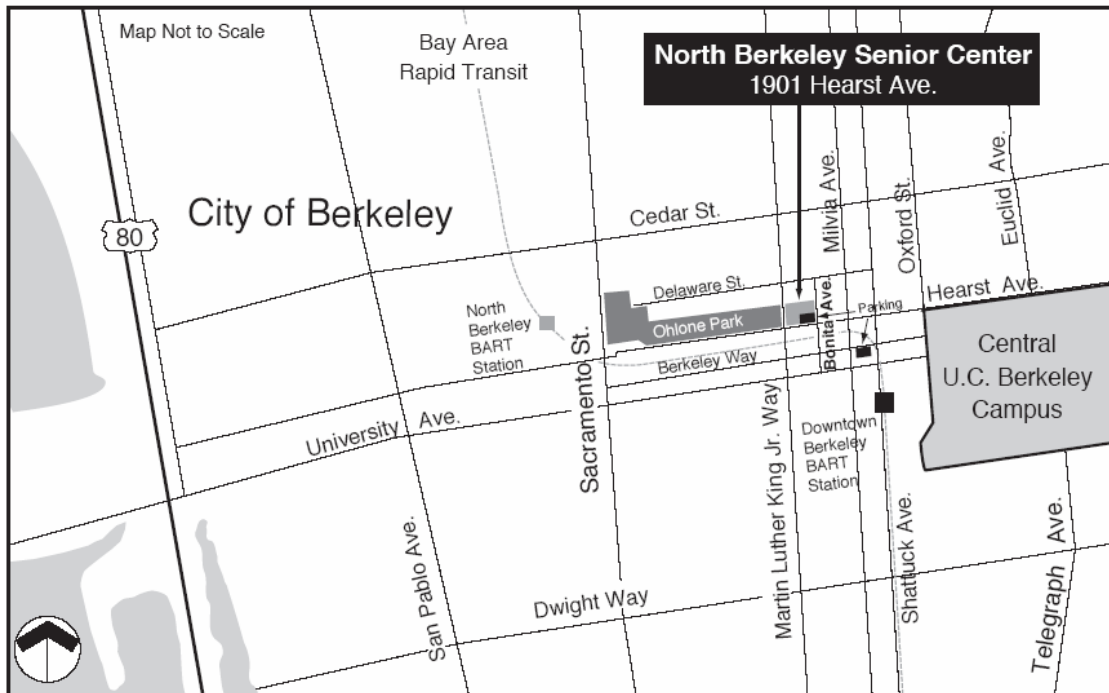
LBNL will hold a public scoping meeting open to all interested agencies and members of the public. The meeting is intended to present a brief overview of the project, to identify environmental impact areas to be analyzed in the Draft EIR, and to invite public comment on the scope of the EIR analysis.

What: Scoping Meeting for Building 51 and Bevatron Demolition EIR

When: March 31, 2005, 6:30 p.m. to 8:30 p.m.

Where: North Berkeley Senior Center  
1901 Hearst Avenue, Berkeley

Parking: Parking is available at or near the North Berkeley Senior Center (see map)



## ENVIRONMENTAL CHECKLIST

### I. PROJECT INFORMATION

1. Project title:

Building 51 and Bevatron Demolition

2. Lead agency name and address:

University of California, Lawrence Berkeley National Laboratory  
One Cyclotron Road, Berkeley, California 94720

3. Contact person and phone number:

Daniel Kevin  
Environmental Planning Group  
Lawrence Berkeley National Laboratory  
One Cyclotron Road, MS 90K0198  
Berkeley, California 94720  
(510) 486-6734

4. Project location:

Building 51, Lawrence Berkeley National Laboratory

5. Project sponsor's name and address:

University of California, Lawrence Berkeley National Laboratory  
One Cyclotron Road, Berkeley, California 94720

6. Custodian of the administrative record for this project (if different from response to item 3 above):

Same as item 3.

7. Identification of previous EIRs relied upon for tiering purposes (including all applicable LRDP and project EIRs) and address where a copy is available for inspection.)

Lawrence Berkeley National Laboratory 1987 Long Range Development Plan (LRDP) Environmental Impact Report, as amended. This consists of the following documents, which are available at the Berkeley Public Library:

- Lawrence Berkeley Laboratory Site Development Plan Environmental Impact Report, August 1987 (SCH #[19]85112610);
- Supplemental Environmental Impact Report for the Proposed Renewal of the Contract between the United States Department of Energy and The Regents of the University of California for Operation and Management of the Lawrence Berkeley National Laboratory, September 1992 (SCH #[19]91093068); and
- Supplemental Environmental Impact Report Addendum for the Proposed Renewal of the Contract between the United States Department of Energy and The Regents of the University of California for Operation and Management of the Lawrence Berkeley National Laboratory, September 1997 (SCH #[19]91093068)].

## II. PROJECT DESCRIPTION

1. Description of project: (Describe the whole action involved, including but not limited to physical characteristics, site, later phases of the project, and any secondary, support, or off- site features necessary for its implementation and site selection process. Attach additional sheets if necessary.

Lawrence Berkeley National Laboratory (LBNL, Berkeley Lab, or "the Laboratory") is a multi-program national research laboratory operated and managed by the University of California under a contract with the U.S. Department of Energy (DOE). DOE and LBNL propose to demolish the Bevatron and the building housing it, Building 51 (Building 51 includes Building 51A, an integral addition to the main building). The Bevatron was a synchrotron accelerator which began operation in 1954, was last operated in 1993, and is now abandoned in place within Building 51. Building 51 is an approximately 126,500 gross square foot steel frame structure built in the early 1950s. The Bevatron is approximately 180 feet in diameter. Because of the significant contributions in the fields of particle and nuclear physics that were made there (in particular, four Nobel Prizes were awarded for particle physics research conducted in whole or in part at the Bevatron), the building is eligible for listing in the National Register of Historic Places. The site is located on 1.44 acres in the west-central part of LBNL. See Figures 1 through 4.

The objective of the project is to remove a substandard building and its contents from Berkeley Lab. Neither the Bevatron nor Building 51 are needed by LBNL. The Bevatron has not operated in over ten years and is non-functional. The Building 51 structure housing the Bevatron is seismically inadequate, and, as it is relatively old and deteriorating, it consumes disproportionate maintenance resources. In addition, removal of the building and its contents would free up the site for future, alternate development. However, while future reuse of the site is contemplated by LBNL, no specific plan or project has been identified to date.

In brief, the principal project activities would be as follows: the approximately 50 employees currently working in Building 51 would be relocated to other buildings at Berkeley Lab. Utilities would be disconnected, blocks that shielded the accelerator would be removed from around the Bevatron apparatus, the Bevatron itself (including steel yokes, magnets, and beamline pipes) would be disassembled and removed from the site, and the Building 51 structure and components (including slabs, foundations, and subsurface structures, as well as equipment therein, e.g., cranes), would be demolished and removed. Project equipment (including excavators, front end loader, graders, and mobile crane), and demolition materials would be staged at or nearby the project site. Demolition personnel not taking public transit and the Berkeley Lab shuttle would park nearby the project site or elsewhere at LBNL.

Soil and groundwater contamination are known to be present in some areas beneath Building 51. The primary known chemicals of concern are chlorinated volatile organic compounds (VOCs) in soil and groundwater. In addition, polychlorinated biphenyls (PCBs) have been detected in some groundwater samples. Contaminants in soil outside of the plume source areas have included primarily chlorinated VOCs, petroleum and aromatic hydrocarbons, polycyclic aromatic hydrocarbons, PCBs, and mercury. Contaminated soil and groundwater would be dealt with in accordance with regulatory agency-approved clean-up standards. The site would then be backfilled to approximately its current grade, compacted, and hydroseeded. Demolition would take place over a several year period, beginning in FY 2006 or FY 2007 and ending in FY 2010 to FY 2012. All work would be accomplished in accordance with applicable regulatory requirements and DOE policies.

The bulk of the materials that would be removed would consist of non-hazardous construction debris and other items typical of demolition projects. The project would seek to reuse or recycle



such materials (e.g., uncontaminated metals and concrete) where feasible. Items that could not be salvaged would be sent to appropriate municipal landfills, such as the Altamont Landfill in Livermore, California. However, some materials are not suitable for salvage and cannot be sent to ordinary landfills. For example, portions of the Bevatron apparatus, its concrete block shielding, and other items have low levels of radioactivity above naturally-occurring levels due to their exposure during operation of the Bevatron. Also, some non-radioactive hazardous materials would or might be encountered, including asbestos, mercury, lead, machine oils, and PCBs.

Items would be screened and characterized based on their location and the associated degree of potential hazard. For example, the possibility exists that some of the shielding blocks have some increased radioactivity beyond the radioactivity that is naturally present; in contrast, it is already known that there is no increased radioactivity above naturally-occurring levels in the outer structure of Building 51. In general, characterization of potentially radioactive materials would be accomplished by taking external radiation measurements using appropriate survey instrumentation and/or swipe samples. Items showing detectable radioactivity would be sent to an approved disposal site, such as the Nevada Test Site (a DOE facility approximately 65 miles from Las Vegas) or Envirocare in Clive, Utah (a privately operated facility). Based on prior experience, the Laboratory anticipates that less than one-third of the shielding blocks, and a smaller fraction of other items, would have detectable human-added radioactivity above the DOE limit. Items contaminated with non-radioactive hazardous materials would be sent to treatment and disposal facilities or landfills permitted to receive such items. If any mixed waste (i.e., waste that is both hazardous and radioactive) was found, it too would be handled in accordance with applicable regulations and DOE policies. The project would comply with the DOE Metals Recycling Moratorium, which restricts metals from radiological areas from being recycled.

Over the four to six year term of the project, several thousand one-way truck trips would be generated, including inbound trips with empty trucks, outbound trips with demolition debris, and inbound trips delivering clean backfill. Shipments are planned to proceed westward down Hearst Avenue, south on Oxford, and then west on University Avenue to Interstate 80.

Actions to reduce potential environmental impacts to less than significant would be included either as part of the project or as mitigation measures. As indicated in the attached Checklist, it is known in advance that if implemented, the project would have a reasonably foreseeable significant environmental impact in the area of cultural resources – the demolition of a historic structure eligible for listing in the National Register of Historic Places – that for the purpose of this analysis cannot be mitigated to less than significant under CEQA. The site is not listed on the CAL/EPA Hazardous Waste and Substances Sites List, also known as the Cortese List.

As stated earlier, the EIR for the proposed project will be tiered off of LBNL's 1987 Long Range Development Plan EIR, as amended, and will incorporate applicable mitigation measures from that EIR. The CEQA concept of "tiering" refers to the coverage of general environmental matters in broad program-level EIRs, with subsequent focused environmental documents for individual projects that implement the program. The EIR for the proposed project will incorporate by reference the analyses in the 1987 LRDP EIR, as amended, and will concentrate on project-specific issues. CEQA and the CEQA Guidelines encourage the use of tiered environmental documents to reduce delays and excessive paperwork in the environmental review process. This is accomplished in tiered documents by eliminating repetitive analyses of issues that are adequately addressed in the Program EIR and by incorporating those analyses by reference.

Section 15168(d) of the CEQA Guidelines provides for simplifying the task of preparing environmental documents on later parts of the program by incorporating by reference factors that apply to the program as a whole. Consistent with CEQA Guidelines Section 15152(d), where an

EIR has been prepared or certified for a program or plan, the environmental review for a later activity consistent with the program or plan should be limited to effects that were not analyzed as significant in the prior EIR or that are susceptible to substantial reduction or avoidance. Accordingly, the tiering of the environmental analysis for the proposed project will allow this Tiered EIR to rely on the 1987 LRDP EIR, as amended, for the following:

- a discussion of general background and setting information for environmental topic areas;
- issues that were evaluated in sufficient detail in the 1987 LRDP EIR, as amended, for which there is no significant new information or change in circumstances that would require further analysis;
- long-term cumulative impacts assessment; and
- mitigation measures from the 1987 LRDP EIR, as amended, which are applicable to the proposed project.

2. Project Objectives:

See project description, above.

3. Surrounding land uses and environmental setting: Briefly describe the project's surroundings:

LBNL is located in the cities of Berkeley and Oakland in Alameda County on property owned by the University of California (UC). The project site is located within the City of Berkeley portion of LBNL. Laboratory, office, engineering, and computing functions occupy the LBNL buildings immediately adjacent to Building 51. Surrounding land uses include residential areas to the north of the LBNL property line, LBNL buildings and UC Berkeley athletic fields to the south, LBNL buildings and UC Berkeley student housing, amphitheater, and classrooms to the west, and additional LBNL buildings and the UC Berkeley Lawrence Hall of Science Museum to the east.

4. Discretionary approval authority and other public agencies whose approval is required (e.g., permits, financing approval, or participation agreement.)

The LBNL Director has discretionary authority for approval of the project. The Department of Energy is funding the project. An asbestos demolition notification to the Bay Area Air Quality Management District would be required; if regulated asbestos is present, an asbestos renovation notification would also be needed. Additional historical documentation (an addendum to an existing Historic American Engineering Record report for the facility) would be completed and accepted by the National Park Service prior to demolition of the facility.

5. Consistency with the LRDP: (Describe the project's consistency with: the scope of development projected in the LRDP; campus and community population levels projected in the LRDP; LRDP designation for this type of project; and applicable policy objectives and goals of the LRDP).

LBNL's current Long Range Development Plan and LRDP EIR were approved in 1987. The EIR was later supplemented in 1992 and an Addendum was prepared in 1997 (these documents are referred to collectively as the "1987 LRDP EIR, as amended"). The proposed project will be analyzed for consistency with the current LRDP and 1987 LRDP EIR, as amended. Preliminary analysis indicates that the project is consistent with these documents. Demolition of outmoded

structures is envisioned in the latter, and no land use conflict would be presented by the demolition of the structure involved. No new buildings or permanent personnel would be added, and the project would be within the space and population levels anticipated in the current 1987 LBNL LRDP and analyzed in the 1987 LRDP EIR, as amended. The EIR for the proposed project will be tiered off of LBNL's 1987 Long Range Development Plan EIR, as amended, and will incorporate applicable mitigation measures from that EIR.

LBNL is undergoing a multi-year process to prepare a new LRDP and LRDP EIR. If adopted by The Regents of the University of California, these documents would guide future development at LBNL for approximately 20 years. It is expected that draft versions of these documents will be available for public review later in 2005. Although the current LRDP and 1987 LRDP EIR, as amended, are the applicable guiding documents for this proposed Project, it is anticipated that the proposed Project would be consistent with the new LRDP and LRDP EIR.

### III. ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

<input checked="" type="checkbox"/>	Aesthetics	<input type="checkbox"/>	Agriculture Resources	<input checked="" type="checkbox"/>	Air Quality
<input checked="" type="checkbox"/>	Biological Resources	<input checked="" type="checkbox"/>	Cultural Resources	<input checked="" type="checkbox"/>	Geology/Soils
<input checked="" type="checkbox"/>	Hazards & Hazardous Materials	<input checked="" type="checkbox"/>	Hydrology/Water Quality	<input checked="" type="checkbox"/>	Land Use/Planning
<input type="checkbox"/>	Mineral Resources	<input checked="" type="checkbox"/>	Noise	<input type="checkbox"/>	Population/Housing
<input checked="" type="checkbox"/>	Public Services	<input type="checkbox"/>	Recreation	<input checked="" type="checkbox"/>	Transportation/Traffic
<input checked="" type="checkbox"/>	Utilities/Service Systems	<input checked="" type="checkbox"/>	Mandatory Findings of Significance		

**IV. DETERMINATION: (To be completed by the Lead Agency)**

On the basis of the initial evaluation that follows:

\_\_\_\_\_ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

\_\_\_\_\_ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

\_\_\_\_\_ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

X  
\_\_\_\_\_ I find that the proposed project MAY have a “potentially significant impact” or “potentially significant unless mitigated” impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. A TIERED ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

\_\_\_\_\_ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, no further environmental document is required. FINDINGS consistent with this determination will be prepared.

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Printed Name

\_\_\_\_\_  
For

## Initial Study

The following is a preliminary assessment of potential environmental impacts, prepared in compliance with CEQA, that will be analyzed in the Building 51 and Bevatron Demolition EIR. This assessment will be used as part of the information considered in determining the scope of environmental issues to be evaluated in preparing the EIR.<sup>1</sup> The EIR will consider all areas below. Topic areas that are expected to be impacted by the proposed project will be fully analyzed. Topic areas not expected to be impacted will be addressed briefly or in depth as appropriate.

	Will be Analyzed in EIR	No Additional Analysis Required
<b>1. AESTHETICS</b> -- Would the project:		
a) Have a substantial adverse effect on a scenic vista?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
The City of Berkeley has designated two scenic view corridors: Cedar Street and Dwight Way. The City of Oakland has designated two scenic corridors: Skyline Boulevard and Shepherd Canyon Road. Demolition and removal of Building 51 would reveal the hillside behind Building 51 to some viewpoints resulting in a new vista, which would be a beneficial impact. Temporary aesthetic impacts on scenic vistas, as well as temporary aesthetic impacts related to the demolition and removal of Building 51 and the Bevatron, will be analyzed in the EIR.		
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Regional access to the LBNL hill site is provided by Interstate Highways 80 and 580, and State Routes 24 and 13. The California Department of Transportation has designated 8.9 miles of Highway 24, from the east portal of the Caldecott Tunnel to the I-680 near Walnut Creek, as a Scenic Highway under the California Scenic Highway Program. No LBNL on-site resources are within or in the vicinity of a state scenic highway. Therefore, no impact would occur to a state scenic highway. This topic will not be discussed further in the EIR.		
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
The existing visual character consists of disjointed buildings of varying architecture. The original Bevatron has been altered numerous times since its construction. Removal of the structures would alter the character of the site by replacing a large building complex with a vacant lot, which would not result in an adverse impact to the project site and its surroundings. The EIR will evaluate the project's temporary impact to the existing visual character of the site and its surroundings that would occur during demolition of Building 51 and the Bevatron.		
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
If demolition activities occur during hours when it is dark outside, additional temporary lighting would be required that could affect views. The EIR will address the project's potential to create a new source of light or glare which could adversely affect day and/or nighttime views in the project area.		

<sup>1</sup> Explanations are provided in shaded boxes. These explanations represent a best estimate based on the current definition of the proposed demolition and its likely effects.

	Will be Analyzed in EIR	No Additional Analysis Required
e) Exceed an applicable LRDP or Program EIR standard of significance?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
The EIR will evaluate whether the proposed demolition would exceed an applicable LRDP or Program EIR standard of significance related to aesthetics and/or visual quality.		
<b>2. AGRICULTURE RESOURCES:</b> In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. Would the project:		
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
No active agriculturally used lands occur on the LBNL site and the project site does not contain Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. Therefore, this topic will not be discussed further in the EIR.		
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
No active agriculturally-used lands occur on the LBNL site. In addition, LBNL is not zoned for agricultural use and is not associated with a Williamson Act contract. Therefore, this topic will not be discussed further in the EIR.		
c) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
No active agriculturally-used lands occur on the LBNL site. Demolition of the existing structures would not alter or cause the conversion of farmland within the greater community. This topic will not be discussed further in the EIR.		
d) Exceed an applicable LRDP or Program EIR standard of significance?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
No standards of significance would be affected since there is no agriculture on the project site. This topic will not be discussed further in the EIR.		
<b>3. AIR QUALITY --</b> Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:		
a) Conflict with or obstruct implementation of the applicable air quality plan?	<input checked="" type="checkbox"/>	<input type="checkbox"/>

	Will be Analyzed in EIR	No Additional Analysis Required
<p>The project site is under the jurisdiction of the Bay Area Air Quality Management District (BAAQMD). The BAAQMD's jurisdictional area is currently designated a non-attainment zone for PM<sub>10</sub> (particulate matter with a nominal diameter of 10 microns or less), and for ozone. Project-related demolition activities would be likely to add incrementally to regional ambient air pollutant emissions, including short- and long-term emissions of criteria air pollutants from mobile and stationary sources, including PM<sub>10</sub> and ozone. The EIR will evaluate the project's potential to conflict with or obstruct implementation of applicable air quality plans.</p>		
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<p>The EIR will examine the potential for vehicle and stationary source emissions under the project to violate state and federal air quality standards or contribute to existing air quality violations. Control measures, such as BAAQMD-recommended PM<sub>10</sub> controls, would be implemented. The potential for mobile source and construction emissions associated with the proposed demolition to influence air quality will also be analyzed.</p>		
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<p>The BAAQMD is designated as a non-attainment area for ozone and PM<sub>10</sub> standards. Therefore, any increased LBNL contribution of these emissions to the region may constitute an adverse cumulative impact of the project. The EIR will examine the cumulative projection of total emissions through 2025 to determine whether project increases in non-attainment criteria pollutants would be cumulatively considerable.</p>		
d) Expose sensitive receptors to substantial pollutant concentrations?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<p>The EIR will evaluate whether demolition activities would expose sensitive receptors, including nearby residences and schools, to substantial pollutant concentrations.</p>		
e) Create objectionable odors affecting a substantial number of people?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<p>Ongoing activities from the proposed project are not expected to create nuisance or objectionable odors affecting substantial numbers of people, particularly people off-site. The prevailing wind directions measured on site typically do not blow in the direction of nearby populated areas during normal LBNL operating hours. Nevertheless, the EIR will examine the potential for objectionable odors resulting from the proposed project.</p>		
f) Exceed an applicable LRDP or Program EIR standard of significance?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<p>The EIR will evaluate whether the proposed demolition would exceed an applicable LRDP or Program EIR standard of significance related to air quality.</p>		

	Will be Analyzed in EIR	No Additional Analysis Required
<b>4. BIOLOGICAL RESOURCES</b> – Would the project:		
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
The area that would be demolished is already developed or otherwise disturbed, and the general vicinity experiences a high level of human activity. Thus, the potential for listed or special status species to occur in the project area is considered to be low. However, the EIR will examine the potential for the proposed demolition to adversely affect candidate, sensitive, or special status species or their habitat.		
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
There is no known riparian habitat or other sensitive natural community in the vicinity of the project site. The EIR will identify any relevant riparian or sensitive natural communities and analyze potential project impacts.		
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
There are no known wetlands in the vicinity of the project site. The EIR will identify any relevant jurisdictional wetlands as defined under Section 404 of the Clean Water Act and analyze potential project impacts.		
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
The project site is not known to serve as a migratory corridor or nursery site to any native resident or migratory species. However, the EIR will evaluate whether project demolition would substantially interfere with the movement of any native resident or migratory species or with established native wildlife nursery sites.		
e) Conflict with any local applicable policies protecting biological resources?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
LBNL is a federal facility conducting work within the University of California's mission and as such, is generally exempt under the federal and state constitutions from compliance with local requirements. However, LBNL seeks to cooperate with local jurisdictions in addressing the physical consequences of its activities. The EIR will evaluate the consistency of the proposed demolition with federal and state plans, policies, laws and regulations, such as the Migratory Bird Treaty Act, that are relevant to potentially occurring onsite biological resources.		



	Will be Analyzed in EIR	No Additional Analysis Required
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other applicable habitat conservation plan?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
The LBNL site is not subject to or designated for any adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved conservation plan. Therefore, this topic will not be discussed further in the EIR.		
g) Exceed an applicable LRDP or Program EIR standard of significance?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
The EIR will evaluate whether the proposed demolition would exceed an applicable LRDP or Program EIR standard of significance related to biological resources.		
<b>5. CULTURAL RESOURCES -- Would the project:</b>		
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<p>Building 51 is eligible for listing on the National Register of Historic Places. The Bevatron was among the world's leading particle accelerators during a forty-year period from 1954 to 1993 and is associated with significant contributions in the fields of particle and nuclear physics. Four Nobel Prizes were awarded for particle physics research conducted in whole or in part at the Bevatron. The impact on historical resources from demolition of Building 51 would be lessened by already-completed Historic American Engineering Record (HAER) documentation for the building that has been accepted by the National Park Service (NPS). Berkeley Lab has extensive photographic documentation of the facility, and, should the proposed project proceed, LBNL plans to commemorate the facility with a monument and/or a display that would list the historic discoveries that occurred there. In addition, as stated in a Memorandum of Agreement among DOE, the California State Historical Preservation Officer, and the Advisory Council on Historic Preservation, with the acceptance of the HAER report by NPS, DOE may demolish Building 51 provided that DOE contact the Historic American Building Survey (HABS) of the NPS to determine what level and kind of recordation is required for the buildings, and that such documentation is completed and accepted by HABS prior to demolition. LBNL has consulted with NPS, and as agreed to by the latter, an addendum to the HAER would be submitted that would meet HABS requirements prior to demolition.</p> <p>Although these measures would reduce the impact on the historic resources, CEQA Guidelines Section 15126.4(b)(2) states that, "[i]n some circumstances, documentation of a historical resource, by way of historic narrative, photographs, or architectural drawings as mitigation for the effects of demolition of the resources will not mitigate the effects to a point where clearly no significant effect on the environment would occur." Based on the above considerations, for the purposes of conservative impact analysis, the proposed demolition of Building 51 will be considered in the EIR to have a potentially significant impact.</p>		
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
There are no known archaeological resources in the project vicinity that could be affected by the proposed demolition activities. However, there is a remote possibility of accidental discovery of prehistoric archaeological resources during demolition, as Native American settlements were prolific in this part of California. As demolition activities could damage or destroy such resources if they exist on the project site, this issue will be addressed in the EIR.		

	Will be Analyzed in EIR	No Additional Analysis Required
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
The project site is not located in an area with the potential to contain unique paleontological resources, nor are there unique geologic features on the site. Therefore, these topics will not be discussed further in the EIR.		
d) Disturb any human remains, including those interred outside of formal cemeteries?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
There are no known human remains on the project site, including those interred outside of formal cemeteries. Nonetheless, the EIR will evaluate the potential for accidental discovery of human remains during project demolition.		
e) Exceed an applicable LRDP or Program EIR standard of significance?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
The EIR will evaluate whether the proposed demolition would exceed an applicable LRDP or Program EIR standard of significance related to cultural resources.		
<b>6. GEOLOGY AND SOILS -- Would the project:</b>		
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:		
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
The LBNL site is near the Hayward Fault. The EIR will examine the relationships between the proposed demolition and known faults, and will analyze potential impacts from the project due to seismic shaking, ground failure, and landslides. In general terms, however, the removal of Building 51 would improve safety on the site, as by removing the structure, the risks associated with seismic and other geologic events would be diminished.		
ii) Strong seismic ground shaking?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
See above. The EIR will analyze the potential increased seismic shaking-related impacts from the project.		
iii) Seismic-related ground failure, including liquefaction?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
See above. The EIR will analyze the potential increased ground failure-related impacts from the project.		
iv) Landslides?	<input checked="" type="checkbox"/>	<input type="checkbox"/>

	Will be Analyzed in EIR	No Additional Analysis Required
Portions of the project site are bordered by steep slopes. The EIR will analyze the potential increased landslide-related risk impacts from the project.		
b) Result in substantial soil erosion or the loss of topsoil?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Topsoil has already been removed from the site to construct the existing buildings to be demolished. Erosion could occur during demolition activities. The EIR will examine the potential loss of topsoil and potential for substantial soil erosion that could result from the project.		
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
The EIR will evaluate the project's potential to result in an on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse.		
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1997), creating substantial risks to life or property?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
The soil on the site is Maymen loam, which is not expansive and is commonly used for urban development. Also, no structure would be developed on the site under this proposed project, minimizing the risk to life and property. Therefore, this topic will not be discussed further in the EIR.		
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
The project site is served by sanitary sewer systems. The project would not result in the use of septic tanks or alternative waste water disposal systems. Therefore, this topic will not be discussed further in the EIR.		
f) Exceed an applicable LRDP or Program EIR standard of significance?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
The EIR will evaluate whether the proposed demolition would exceed an applicable LRDP or Program EIR standard of significance related to geology and soils.		
<b>7. HAZARDS AND HAZARDOUS MATERIALS –</b> Would the project:		
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input checked="" type="checkbox"/>	<input type="checkbox"/>

	Will be Analyzed in EIR	No Additional Analysis Required
The proposed demolition would result in the transportation and disposal of hazardous waste, low-level radioactive waste, and possibly, mixed waste. The project would comply with LBNL hazardous materials policies and programs, in addition to applicable DOE requirements, and the Laboratory undertakes detection, investigation, and remediation activities in accordance with applicable regulatory requirements. The EIR will characterize on-site hazardous materials use, transport, and disposal and will evaluate potential impacts associated with these activities.		
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
As stated above, the project would comply with LBNL hazardous materials policies and programs, in addition to applicable DOE requirements, and the Laboratory undertakes detection, investigation, and remediation activities in accordance with applicable regulatory requirements. The EIR will characterize hazardous waste handling and hazardous materials use in demolition activities, along with their transport, handling, and disposal, and will consider the potential for their release to the environment. Also, the project site includes some areas of soil and groundwater known to contain solvents and/or other contaminants; this issue will be analyzed in the EIR.		
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
The project site is approximately 1,500 feet (approximately 0.28 miles) north of the UC Berkeley campus. The Lawrence Hall of Science, which is not a school, but rather an educational institution (science museum) serving many school-aged visitors, is approximately 1,300 feet northeast of the project site. No existing or proposed kindergarten-12th grade schools are located within one-quarter mile of the project site. While the project would involve handling of certain hazardous materials, those materials and their handling protocols are subject to extensive regulations and procedures and oversight. Therefore, this topic will not be discussed further in the EIR.		
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
The project site is not within a portion of LBNL that is classified as a hazardous waste site under Government Code Section 65962.5. Therefore, this topic will not be discussed further in the EIR.		
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
The project site is neither within an airport land use plan nor within the vicinity of an airport. This topic will not be discussed further in the EIR.		
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Will be Analyzed in EIR	No Additional Analysis Required
The project site is not within the vicinity of a private airstrip. This topic will not be discussed further in the EIR.		
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
The EIR will evaluate the project's potential to impair implementation of or physically interfere with LBNL's site emergency response and evacuation plans.		
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
The EIR will analyze the project's risks associated with wildland fires. LBNL has considerable on-site fire suppression capabilities and its on-site fire department, which is maintained under contract with Alameda County, maintains mutual assistance arrangements with neighboring fire districts. The Laboratory also has implemented a fuel reduction/vegetation management program that has greatly reduced the risk of wildland fire in the vicinity of the Lab.		
i) Exceed an applicable LRDP or Program EIR standard of significance?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
The EIR will evaluate whether the proposed demolition would exceed an applicable LRDP or Program EIR standard of significance related to hazards and hazardous materials.		
<b>8. HYDROLOGY AND WATER QUALITY</b> – Would the project:		
a) Violate any water quality standards or waste discharge requirements?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
The EIR will evaluate impacts to water quality from runoff and evaluate whether the project would result in a violation of applicable standards or waste discharge requirements. The project would comply with LBNL's existing Storm Water Pollution Prevention Plan. Demolition-related ground disturbance and other activities would comply with the Association of Bay Area Governments' Manual of Standards for Erosion and Sediment Control Measures, and with the State of California's Best Management Practices for Construction Activity Handbook.		
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
LBNL does not use on-site groundwater nor does its steep terrain allow it to be an important site for groundwater recharge. Except for monitoring wells, there are no groundwater wells on-site or nearby that support existing or planned land uses. Groundwater is not a local supply source for Berkeley. Therefore, this topic will not be discussed further in the EIR.		

	Will be Analyzed in EIR	No Additional Analysis Required
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
There are no natural drainages on the currently developed site; therefore, no streams or rivers would be altered. With the removal of the structures and the impervious surface coverage, the natural infiltration would be restored. Existing stormwater drainages would not be removed. Removal of impervious surfaces could result in the potential for erosion or siltation during a storm event. The EIR will evaluate the project's potential to result in increased erosion or siltation during a storm.		
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
There are no natural drainages on the currently developed site; therefore, no streams or rivers would be altered. With the removal of the structures and the impervious surface coverage, the natural infiltration would be restored. Existing stormwater drainages would not be removed, providing drainage in addition to natural infiltration that would be added or recovered on the site. The EIR will evaluate the project's potential to result in or contribute to flooding on- or off-site.		
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Demolition would result in the removal of existing impervious surfaces; therefore, the timing and duration of runoff may be altered, which would also alter any existing demand on drainage systems. In general, the removal of impervious surfaces tends to slow the rate of runoff. The EIR will analyze the project's runoff contribution and evaluate whether it would exceed the capacity of the stormwater drainage systems and whether it would provide substantial additional sources of polluted runoff to the stormwater drainage system.		
f) Otherwise substantially degrade water quality?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Erosion would be minimized with implementation of control practices, including hydroseeding the site after demolition is complete. Contaminated soils beneath the building would be dealt with in accordance with regulatory agency-approved clean-up standards. The EIR will evaluate the overall impact to water quality that would result from the proposed project.		
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
The project site is not within a 100-year flood hazard area nor would the project involve construction of residential housing. Therefore, this topic will not be discussed further in the EIR.		

	Will be Analyzed in EIR	No Additional Analysis Required
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
No structures would result from the demolition, nor is the site within a flood hazard area. This topic will not be discussed further in the EIR.		
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
See responses to 8g and 8h, above. This topic will not be discussed further in the EIR.		
j) Inundation by seiche, tsunami, or mudflow?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Seiche and tsunami typically occur in enclosed or semi-enclosed water bodies. Because of the location of the project site, neither seiche nor tsunami is considered to be a realistic risk to the project site due to its elevation and proximity to surrounding geographic features. Based on the project site's soil and other site conditions, mudflows do not present a significant potential risk. Therefore, this topic will not be discussed further in the EIR.		
k) Exceed an applicable LRDP or Program EIR standard of significance?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
The EIR will evaluate whether the proposed demolition would exceed an applicable LRDP or Program EIR standard of significance related to hydrology and water quality.		
<b>9. LAND USE AND PLANNING - Would the project:</b>		
a) Physically divide an established community?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
The LRDP would not expand or substantially change either the project site's nor LBNL's borders. Surrounding communities would not be subject to physical division by the proposed demolition. Therefore, this topic will not be discussed further in the EIR.		
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the LRDP, general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
The EIR will analyze the project's consistency with the 1987 LBNL LRDP and other applicable land use plans, policies, and regulations. The 1987 LRDP EIR, as amended, recognized that some LBNL facilities space is substandard and requires replacement, and one of the LBNL site-planning concepts is to redevelop obsolete buildings and infrastructure. The proposed project is consistent with and would advance this site-planning concept. LBNL is a federal facility conducting work within the University of California's mission and as such, is generally exempt under the federal and state constitutions from compliance with local requirements. However, LBNL seeks to cooperate with local jurisdictions in addressing the physical consequences of its activities.		

	Will be Analyzed in EIR	No Additional Analysis Required
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
The LBNL site is not subject to or designated for any adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved conservation plan. Therefore, this topic will not be discussed further in the EIR.		
d) Exceed an applicable LRDP or Program EIR standard of significance?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
The EIR will evaluate whether the proposed demolition would exceed an applicable LRDP or Program EIR standard of significance related to land use and planning.		
<b>10. MINERAL RESOURCES -- Would the project:</b>		
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
There are no known mineral resources of regional or state value at LBNL, including the project site. Therefore, this topic will not be discussed further in the EIR.		
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
There are no locally-important mineral resource recovery sites at LBNL, including the project site. This topic will not be discussed further in the EIR.		
c) Exceed an applicable LRDP or Program EIR standard of significance?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
No standards of significance would be affected since, according to the 1987 LRDP EIR, there are no mineral resources or mineral resource recovery sites on the project site. This topic will not be discussed further in the EIR.		
<b>11. NOISE – Would the project result in:</b>		
a) Exposure of persons to or generation of noise levels in excess of standards established in any applicable plan or noise ordinance, or applicable standards of other agencies?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Use of mechanical equipment associated with demolition activities as well as increased truck traffic could result in noise increases that might create temporary noise effects in nearby areas. The EIR will analyze the magnitude of these noise increases, and will evaluate whether the increased noise levels would exceed applicable standards of significance.		
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
The EIR will address vibration and groundborne noise issues that could result from demolition activities.		



	Will be Analyzed in EIR	No Additional Analysis Required
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
The project involves demolition of Building 51 and the Bevatron; the project would result in vacant land at the project site. Therefore, because there would be no increase in on-site population and no continuing operations would occur as part of the project, the project would not result in increased permanent noise levels and thus, this topic will not be discussed further in the EIR.		
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
See 11a, above.		
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
The project site is neither within an airport land use plan nor within two miles of a public airport. Therefore, this topic will not be discussed further in the EIR.		
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
The project site is not within the vicinity of a private airstrip. Therefore, this topic will not be discussed further in the EIR.		
g) Exceed an applicable LRDP or Program EIR standard of significance?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
The EIR will evaluate whether the proposed demolition would exceed an applicable LRDP or Program EIR standard of significance related to noise.		
<b>12. POPULATION AND HOUSING --</b> Would the project:		
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Will be Analyzed in EIR	No Additional Analysis Required
No new homes, permanent employment, or infrastructure would be created as a result of the demolition of Building 51. As a result, no increases in permanent population levels are anticipated. However, demolition activities would require employment of a number of temporary construction employees. For example, a typical demolition crew may consist of one foreman, two equipment operators, and three to five laborers. The dismantling of the Bevatron and its encasing would likely require two to five crews working in parallel. As the demolition effort would not employ a substantial number of employees and because it is anticipated that the demolition workers would be retained from the regionally-available labor pool, this would be a less than significant impact and therefore, this topic will not be discussed further in the EIR.		
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
There is no existing housing on the project site. Therefore, no housing would be displaced as a result of the demolition activities and thus, this topic will not be discussed further in the EIR.		
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
There is no existing housing on the project site. Therefore, the proposed demolition would not result in the displacement of people and thus, this topic will not be discussed further in the EIR.		
d) Exceed an applicable LRDP or Program EIR standard of significance?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
No standards of significance would be affected since the project would not result in an increased permanent population and would not displace existing housing or people. Therefore, this topic will not be discussed further in the EIR.		
<b>13. PUBLIC SERVICES</b>		
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:		
Fire protection?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
The EIR will analyze impacts to both on- and off-site fire protection providers.		
Police protection?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
The EIR will analyze impacts to both on- and off-site security and police protection providers.		

	Will be Analyzed in EIR	No Additional Analysis Required
Schools?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
No permanent increase in LBNL or employee population would occur; therefore, no increase in demand for schools would occur. Thus, this topic will not be discussed further in the EIR.		
Parks?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
No permanent increase in LBNL or employee population would occur; therefore, no increase in demand for parks would occur. Thus, this topic will not be discussed further in the EIR.		
Other public facilities?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
No permanent increase in LBNL or employee population would occur; therefore, no increase in demand for other public facilities would occur. Thus, this topic will not be discussed further in the EIR.		
b) Exceed an applicable LRDP or Program EIR standard of significance?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
The EIR will evaluate whether the proposed demolition would exceed an applicable LRDP or Program EIR standard of significance related to public services.		
<b>14. RECREATION --</b>		
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
No permanent increase in LBNL or employee population would occur; therefore, no increase in demand for parks or recreational facilities would occur. Thus, this topic will not be discussed further in the EIR.		
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
The project does not include any recreational facilities, nor would it require the construction or expansion of recreational facilities. Thus, this topic will not be discussed further in the EIR. See 14a, above.		
c) Exceed an applicable LRDP or Program EIR standard of significance?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
The 1987 LRDP EIR does not include any standards of significance for recreational facilities.		
<b>15. TRANSPORTATION/TRAFFIC --</b> Would the project:		

	Will be Analyzed in EIR	No Additional Analysis Required
a) Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Project-related traffic would include temporary employee trips to and from the site each workday and truck traffic that would be required to haul demolition-related material off-site and clean fill on-site. The project would include measures to reduce potential impacts on off-site traffic levels of service, e.g., restrictions on the hours and routes of construction trucks. Increases in traffic will be addressed in the EIR.		
b) Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
The EIR will analyze the impact of additional project-related and cumulative traffic on the local street networks, including intersection capacity, the regional highway network, and including roads and highways designated by the Alameda County Congestion Management Agency.		
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
The proposed project would not alter existing air traffic patterns. Therefore, this topic will not be discussed further in the EIR.		
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)? Create unsafe conditions for pedestrians or bicycles?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
The project would not result in any changes to roadway design features, and would thus not increase any hazards due to roadway design. The transportation associated with the project could increase roadway hazard potential for pedestrians and bicycles. This issue will be addressed further in the EIR.		
e) Result in inadequate emergency access?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
The EIR will analyze impacts to emergency access and egress resulting from the demolition activities.		
f) Result in inadequate parking capacity?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Construction workers would require parking areas for their vehicles. As part of the project, Berkeley Lab would require that construction workers park on-site within the construction staging area. The EIR will address the project's ability to accommodate parking demand.		

	Will be Analyzed in EIR	No Additional Analysis Required
g) Conflict with applicable policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
The EIR will analyze whether the project would conflict with applicable LRDP policies supporting alternative transportation.		
h) Exceed an applicable LRDP or Program EIR standard of significance?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
The EIR will evaluate whether the proposed demolition would exceed an applicable LRDP or Program EIR standard of significance related to transportation and traffic.		
<b>16. UTILITIES AND SERVICE SYSTEMS</b> – Would the project:		
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
The EIR will address the project's potential to exceed wastewater treatment requirements of the San Francisco Bay Regional Water Quality Control Board.		
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
After Building 51 is demolished, water would no longer be regularly used on the site and wastewater would no longer be produced from these facilities. Therefore, no new water or wastewater treatment facilities would be required. However, the EIR will evaluate the wastewater demand that could result from demolition activities.		
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
No new impervious surface coverage would result from the demolition project. Existing coverage would decrease at completion of the project, allowing more water to be absorbed into the ground. The existing storm water drainage system would remain intact. However, potential impacts to this system will be addressed in the EIR.		
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Demolition would have only minor effects on water consumption at LBNL. Approximately 50 employees currently located at Building 51 would be relocated to other portions of the Laboratory, and their consumption of water would be maintained at the current rate. Water would be used for construction needs, such as dust suppression; however, the water supply is ample for this purpose. Water demands associated with demolition activities will be addressed in the EIR.		

	Will be Analyzed in EIR	No Additional Analysis Required
e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
See 16c, above.		
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
The project would result in the generation of various types of waste, primarily construction debris and other non-hazardous solid waste, and lesser quantities of hazardous waste, low-level radioactive waste, and possibly, mixed waste. These would be trucked to different landfills or treatment and disposal facilities permitted to take the specific types of wastes involved. The EIR will evaluate the availability of landfill space to accommodate the project's demolition waste.		
g) Comply with applicable federal, state, and local statutes and regulations related to solid waste?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
The EIR will evaluate the impact of the project's compliance with applicable statutes and regulations related to solid waste.		
h) Exceed an applicable LRDP or Program EIR standard of significance?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
The EIR will evaluate whether the proposed demolition would exceed an applicable LRDP or Program EIR standard of significance related to utilities and service systems.		
<b>17. MANDATORY FINDINGS OF SIGNIFICANCE --</b>		
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
The EIR will address the project's potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory.		

	<b>Will be Analyzed in EIR</b>	<b>No Additional Analysis Required</b>
b) Does the project have impacts that are individually limited, but cumulatively considerable? (“Cumulatively considerable” means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Cumulative environmental impacts will be evaluated in the EIR.		
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
As discussed in the checklist sections above, the project would have the potential to result in significant impacts. The EIR will evaluate if these impacts have the potential to result in substantial adverse effects on human beings, either directly or indirectly.		

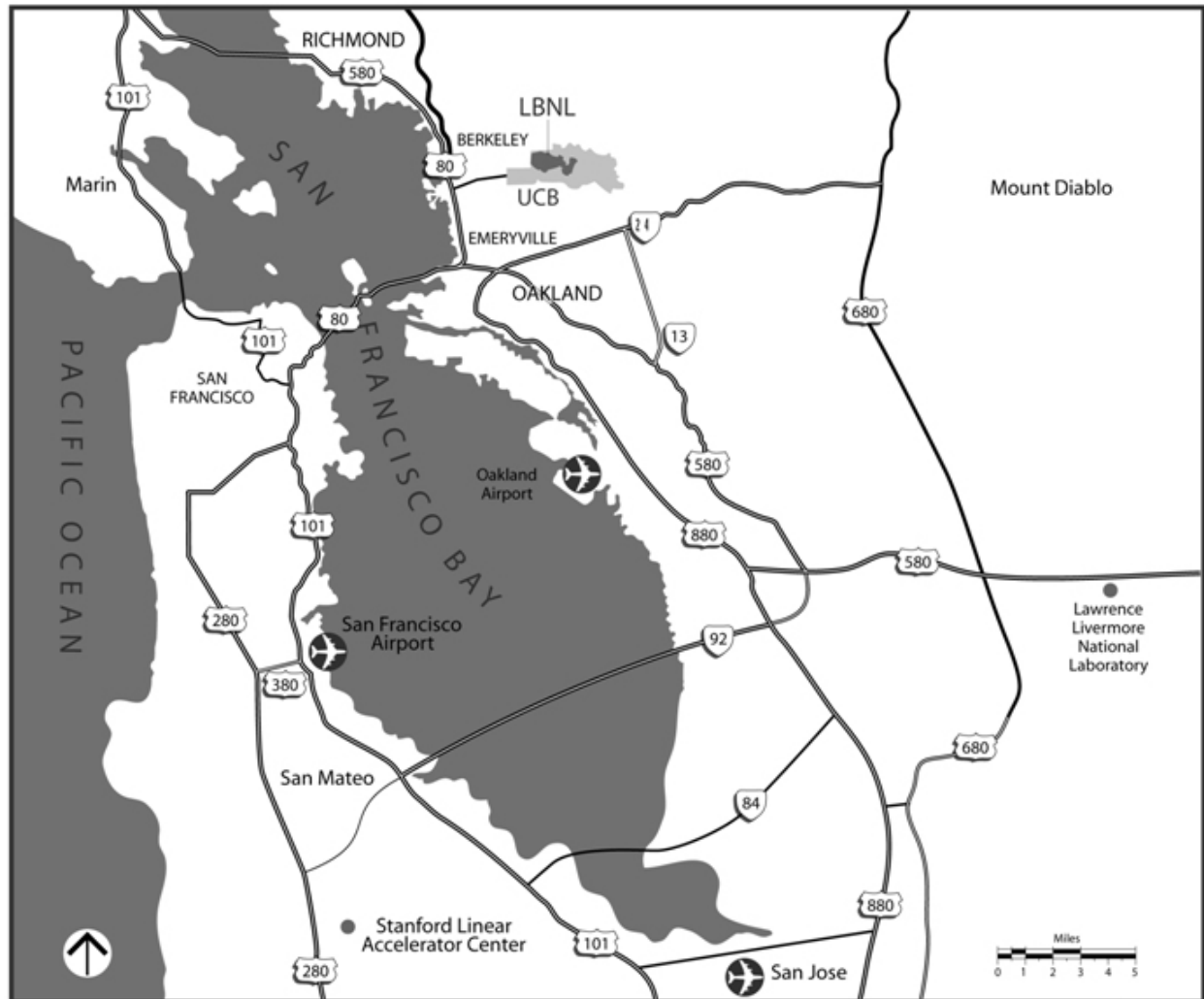


Figure 1 - Berkeley Lab Regional Context



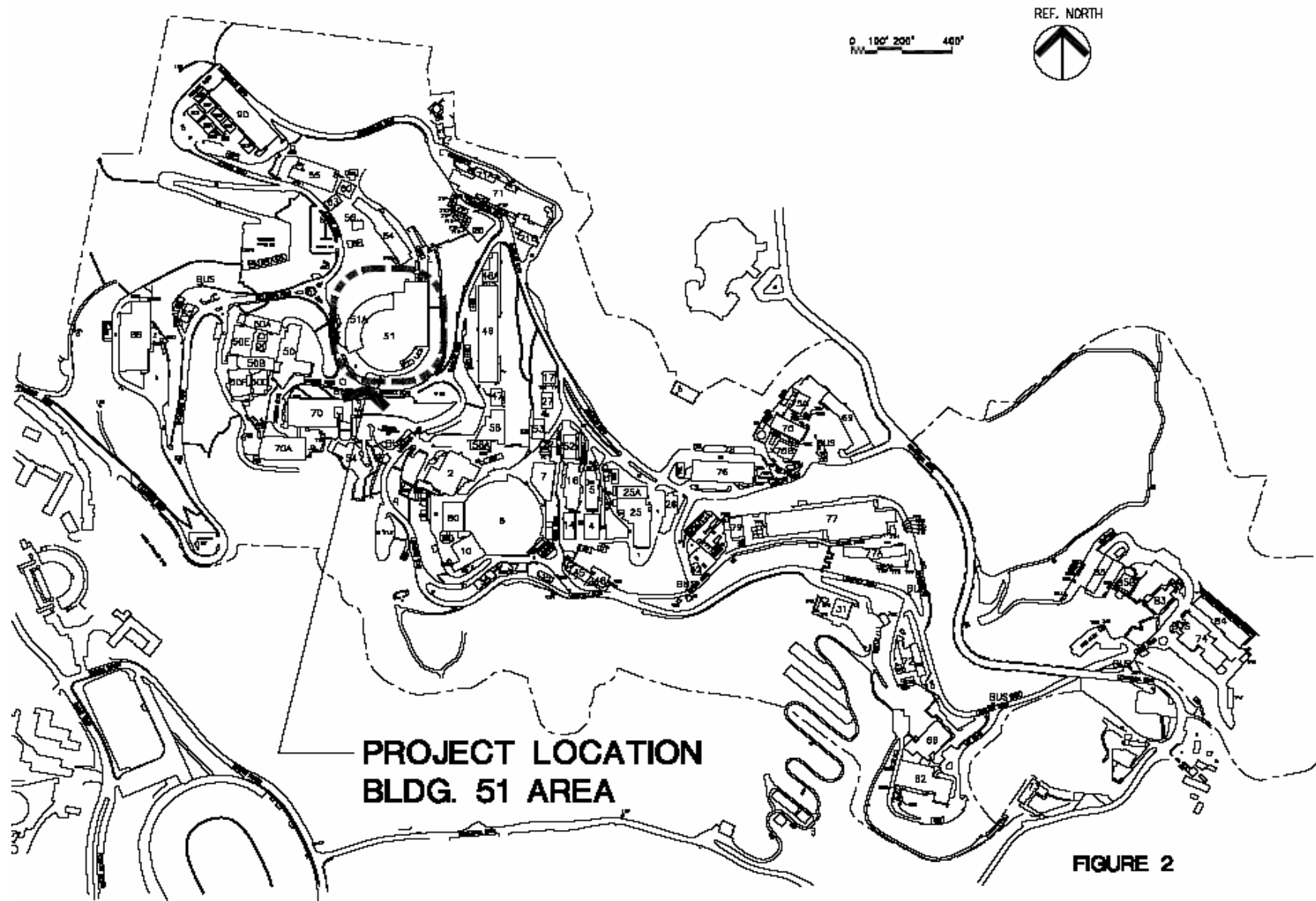


Figure - 2

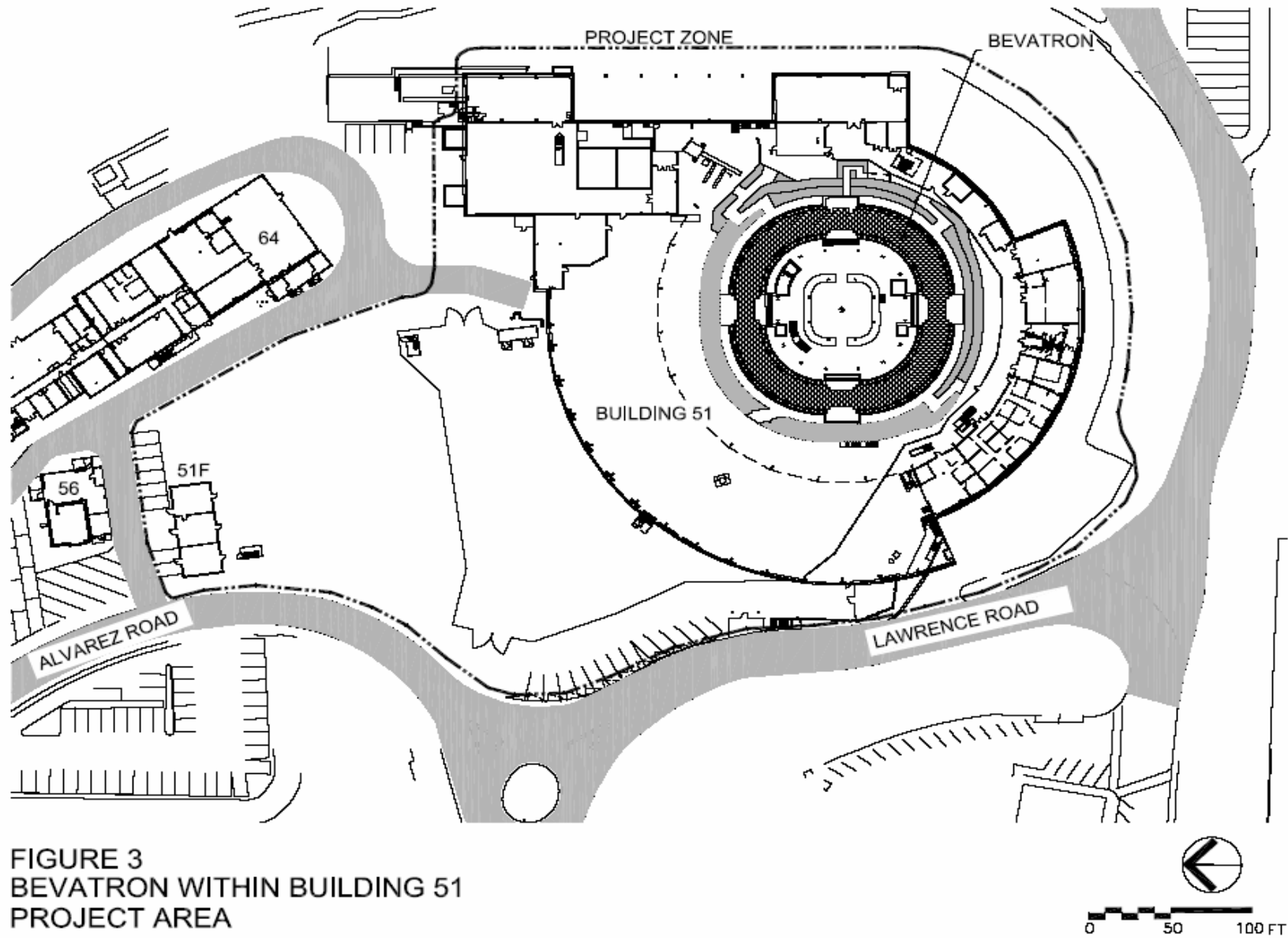


FIGURE 3  
BEVATRON WITHIN BUILDING 51  
PROJECT AREA

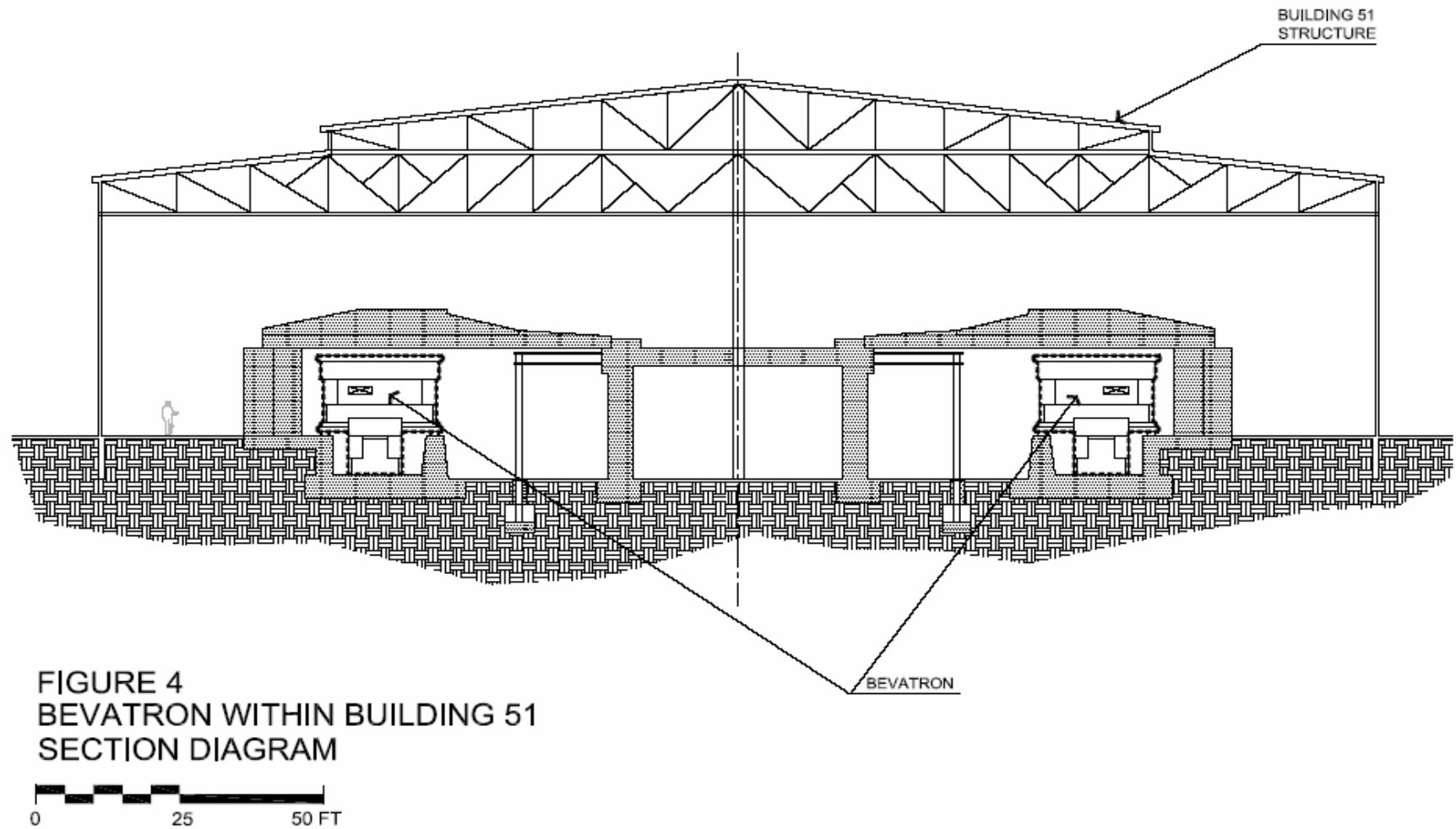


Figure – 4

## **APPENDIX B**

### **Biological Resources Background Information**

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## Plant Communities and Wildlife Habitat

Please see Figure IV-C.1 for the locations of the vegetation types that occur on and near the Building 51 site. Descriptions of each vegetation type and the animals that they may provide habitat for are provided below.

### Annual Grassland

Annual grassland occurs upslope from the project site, between Building 51 and McMillan and Lawrence Roads. This vegetation type occurs in several small areas with no overstory but is primarily found as an understory to the coast live oaks, pine, and eucalyptus also growing on this slope. This grassland is dominated by non-native grasses, such as Italian rye-grass (*Lolium multiflorum*) and wild oat (*Avena sativa*), and ripgut brome (*Bromus diandrus*), and other ruderal<sup>1</sup> species, including Italian thistle (*Carduus pycnocephalus*), rough cat's-ear (*Hypochaeris radicata*), vetch (*Vicia* sp.), and English plantain (*Plantago lanceolata*). However, this vegetation type also supports several native herbaceous species as well, including cow parsnip (*Heracleum lanatum*) and hedge nettle (*Stachys ajugoides*).

Grasslands in the project area may provide habitat for reptiles and amphibians such as western fence lizard (*Sceloporus occidentalis*), northern alligator lizard (*Elgaria coerulea*), and California slender salamander (*Batrachoseps attenuatus*), and birds including mourning dove (*Zenaida macroura*) and golden-crowned sparrow. Mammals such as Botta's pocket gopher (*Thomomys bottae*), California ground squirrel (*Spermophilus beecheyi*), and striped skunk (*Mephitis mephitis*) may browse and forage within the grassland and thrive when varied natural habitats are available nearby. Small rodents can attract raptors, many of them special status including red-tailed hawk (*Buteo jamaicensis*). The value of the grasslands adjacent to Building 51 as wildlife habitat are diminished due to their fragmentation and isolation from other similar, less disturbed habitat at LBNL.

### Coast Live Oak Woodland

Coast live oak woodland occurs within 500 feet of the project site, across Lawrence Road to the southwest of the project site on a fairly steep roadcut. Oaks also occur mixed with pines on the slopes between Building 51 and Lawrence and McMillan Roads with annual grasslands in the understory. In general, oak woodland communities can support an abundant assortment of common reptiles, amphibians, and small mammals such as western skink (*Eumeces skiltonianus*), northern alligator lizard (*Elgaria coerulea*), arboreal salamander (*Aneides lugubris*), and deer mouse (*Peromyscus maniculatus*). Resident and migratory bird species found in oak woodlands include spotted towhee (*Pipilo maculatus*), oak titmouse (*Parus inornatus*), Hutton's vireo (*Vireo huttoni*), western scrub jay, and orange-crowned warbler (*Vermivora celata*). Raptors that may breed and nest in local woodland communities include red-tailed hawk and Cooper's hawk (*Accipiter cooperii*). Oak woodland can also provide breeding and roosting habitat for bats, including fringed myotis (*Myotis thysanodes*) and long-eared myotis (*Myotis evotis*).

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<sup>1</sup> **Ruderal** species are weedy species with characteristics that provide them with the capability of readily colonizing and dominating disturbed areas.

### California Bay Woodland

California bay woodlands dominate many of the drainages at LBNL, most notably the head of Blackberry Canyon, which is located approximately 750 feet north of the project site. This vegetation type is dominated by California bay (*Umbellularia californica*), with coast live oak and big-leaf maple (*Acer macrophyllum*) occurring occasionally. Understory species are often absent where the tree canopy is most dense; when they do occur, in more open stands, understory species can include fairy bells (*Disporum hookeri*), coastal wood fern (*Dryopteris arguta*), California honeysuckle, Stebbin's grass (*Erharta erecta*), and hedge nettle.

California bay woodlands provide habitat for slender salamanders, and varied thrush (*Ixoreus naevius*), and potential nesting habitat for American robin (*Turdus migratorius*), western scrub jay, and Steller's jay (*Cyanocitta stelleri*). Other species that may use this woodland type include California black-tailed deer, raccoon, and opossum.

### Oak-Bay Woodland

This vegetation type, occurs in scattered, small patches within 500 feet of the project site (to the north at the head of Blackberry Canyon and to the east upslope from the project site) and is similar to the two preceding types but dominated by a mix of coast live oak and California bay. Understory is variable according to canopy density, and the composition of the wildlife community expected in oak-bay woodland is similar to that for the woodlands dominated by a single species, as described above.

### Conifer Stands

Conifer stands consisting of tree species that are not native to the Oakland-Berkeley Hills occur throughout LBNL. Conifer species found at LBNL include coast redwood (*Sequoia sempervirens*), Monterey pine (*Pinus radiata*), Torrey pine (*Pinus torreyana*), and Canary Island pine (*Pinus canariensis*). The understory in conifer stands is most often made up of non-native grasses and can be sparse where thick layers of duff have formed. As is the case with eucalyptus stands, nesting raptors may make use of mature trees. Pines with cavities and dead trees may provide nesting habitat for American kestrel (*Falco sparverius*) and woodpeckers (*Picoides* sp.), and roosting and nursery sites for Myotis bats. Conifers in the project vicinity are mixed with oaks on the slopes between the Building 51 parking lot and Lawrence Road and are also planted within 500 feet of the project site further upslope between Lawrence Road and Building 70 and the K1 parking lot.

### Eucalyptus Grove

Several stands of blue gum eucalyptus (*Eucalyptus globulus*) within 500 feet of Building 51, are planted upslope of the proposed project site, between the site and McMillan Road. Beginning in the late 1800s this non-native species was planted widely throughout the Oakland-Berkeley Hills. Understory vegetation is sparse and consists of annual grassland species as described above. Mature eucalyptus groves can provide nesting habitat for a number of raptors, including red-tailed hawks, red-shouldered hawks (*Buteo lineatus*), and great horned owls (*Bubo virginianus*).

Eucalyptus may also provide roosting and nursery sites for several bat species, including fringed myotis (*Myotis thysanodes*) and long eared myotis (*Myotis evotis*).

### **Landscaped Areas**

Landscaped areas occur in association with buildings and parking lots throughout the LBNL hillside site. Plants occurring in these areas are often common horticultural species. Landscaping installed since the 1987 LRDP, as amended, was adopted consists of drought-tolerant species, including a mix of non-native and native species. Landscaped areas can provide foraging and nesting habitat for a variety of bird species, especially those that are tolerant of disturbance and human presence. Birds commonly found in such areas include the non-native English sparrow (*Passer domesticus*), house finch (*Carpodacus mexicanus*), dark-eyed junco (*Junco hyemalis*), and Anna's hummingbird (*Calypte anna*). Reptiles using this type of habitat may include garter snake (*Thamnophis* sp.) and western fence lizard.

## **Special Status Species**

### ***Special Status Species Considered***

The following table presents a list of all species considered in this analysis and includes their status, habitat preferences, their potential to occur on the project site or within its immediate vicinity, and their period of identification.

**TABLE XI.B-1**  
**SPECIAL STATUS SPECIES CONSIDERED IN THE EVALUATION OF THE**  
**LBNL BUILDING 51 DEMOLITION PROJECT**

Common Name <i>Scientific Name</i>	Listing Status USFWS/CDFG/ CNPS	General Habitat	Potential for Species Occurrence Within the Project Area	Period of Identification
Species Listed or Proposed For Listing				
<b><i>Invertebrates</i></b>				
Bay checkerspot butterfly <i>Euphydryas editha bayensis</i>	FT/--/--	Serpentine bunchgrass grassland, larvae feed on <i>Plantago erecta</i>	<b>Low potential.</b> Grasslands in project area do not occur on serpentine or support larval host plants.	March–May
Callippe silverspot butterfly <i>Speyeria callippe callippe</i>	FE/--/--	Coastal areas in dunes, prairie, scrub, and grasslands supporting <i>Viola</i> <i>pedunculata</i>	<b>Low potential.</b> Grasslands on project site are not suitable because they do not support species' host plant.	Spring
<b><i>Fish</i></b>				
Central California coastal steelhead <i>Oncorhynchus mykiss</i>	FT/CSC/--	Unblocked Bay Area and coastal rivers and streams	<b>Absent.</b> Strawberry Creek contains downstream barriers to migration of this species. With the exception of the North Fork, drainages at LBNL are not large enough to support the species. However, suitable habitat does not exist in the North Fork.	Year-round
Winter-run chinook salmon <i>Oncorhynchus tshawytscha</i>	FE/CE/--	Unblocked Bay Area and coastal rivers and streams	<b>Absent.</b> Strawberry Creek contains downstream barriers to migration of this species. Most on-site drainages are not large enough to support the species.	Winter
<b><i>Amphibians</i></b>				
California tiger salamander <i>Ambystoma californiense</i>	FT/CSC/--	Wintering sites occur in grasslands occupied by burrowing mammals; breed in ponds and vernal pools	<b>Absent.</b> Suitable aquatic habitat for this species is not present within the project area.	November– May
California red-legged frog <i>Rana aurora draytonii</i>	FT/CSC/--	Breed in stock ponds, pools, and slow-moving streams with emergent vegetation for escape cover and egg attachment	<b>Absent.</b> On-site drainages do not provide suitable aquatic habitat for this species. No species occurrences are reported within several miles of the project site.	May– November



**TABLE B-1 (CONTINUED)**  
**SPECIAL STATUS SPECIES CONSIDERED IN THE EVALUATION OF THE**  
**LBNL BUILDING 51 DEMOLITION PROJECT**

Common Name <i>Scientific Name</i>	Listing Status USFWS/CDFG/ CNPS	General Habitat	Potential for Species Occurrence Within the Project Area	Period of Identification
Species Listed Or Proposed For Listing (CONTINUED)				
<b>Reptiles</b>				
Alameda whipsnake <i>Masticophis lateralis euryxanthus</i>	FT/CT/--	Inhabits open to partially open scrub communities, including coyote bush scrub and chamise chaparral on primarily south-facing slopes	<b>Low potential.</b> Suitable core habitat for this species is not present within the immediate project vicinity. Although potential habitat does exist in the eastern and southern portions of LBNL, it is unlikely that the species would disperse through the project site due to lack of proximity to suitable habitat.	Spring
<b>Birds</b>				
American peregrine falcon <i>Falco peregrinus</i>	Delisted/CE/--	Forages in marshes and grasslands; nesting habitat includes high, protected cliffs and ledges near water	<b>Low potential.</b> Suitable nesting habitat is not present within the project area. May forage in the vicinity of the project area.	Year-round
Bald eagle <i>Haliaeetus leucocephalus</i>	FT/CE/--	Nests and forages on inland lakes, reservoirs, and rivers; winter foraging at lakes and along major rivers	<b>Low potential.</b> May occur over site as migrant; no suitable foraging or nesting habitat in project vicinity.	Winter
<b>Plants</b>				
Large-flowered fiddleneck <i>Amsinckia grandiflora</i>	FE/CE/1B	Valley grassland, foothill woodland, annual grassland	<b>Low potential.</b> Project site contains marginally suitable habitat; however, only three known natural occurrences, the nearest in east Alameda County (CNPS, 2005).	April–May
Pallid manzanita <i>Arctostaphylos pallida</i>	FT/CE/1B	Broadleaved upland forest, cismontane woodland, closed-cone coniferous forest, chaparral, and coastal scrub; found in siliceous shale, sand, or gravelly substrates	<b>Absent.</b> The project site does not contain suitable soils for this species. Species readily recognizable and not seen during ESA's field surveys (2005; 2003a and b; 2002a-c).	December–March
Robust spineflower <i>Chorizanthe robusta</i> var. <i>robusta</i>	FE/--/1B	Sandy or gravelly openings in cismontane woodland; also coastal dunes and coastal scrub	<b>Low potential.</b> Suitable habitat is not present on the project site (i.e., tree and shrub cover is too dense). Not seen in Alameda or adjacent counties since the 1890s; presumed extirpated in Bay Area (CNPS, 2005).	April–September

**TABLE B-1 (CONTINUED)**  
**SPECIAL STATUS SPECIES CONSIDERED IN THE EVALUATION OF THE**  
**LBNL BUILDING 51 DEMOLITION PROJECT**

Common Name <i>Scientific Name</i>	Listing Status USFWS/CDFG/ CNPS	General Habitat	Potential for Species Occurrence Within the Project Area	Period of Identification
Species Listed Or Proposed For Listing (CONTINUED)				
Presidio clarkia <i>Clarkia franciscana</i>	FE/CE/1B	Serpentine outcrops in coastal scrub and valley and foothill grassland	<b>Absent.</b> Although grassland is present, no serpentine outcrops occur on or adjacent to project site.	May–July
Santa Cruz tarplant <i>Holocarpha macradenia</i>	FT/CE/1B	Light, sandy, or sandy clay soil in coastal prairie and scrub and in valley and foothill grassland; often with non-native associates	<b>Low potential.</b> Marginally suitable habitat is present in the project area, but naturally occurring populations have been extirpated from the Bay Area (CNPS, 2005).	June–October
San Francisco popcorn flower <i>Plagiobothrys diffusus</i>	FSC/CE/1B	Coastal prairie and valley and foothill grassland	<b>Low potential.</b> Marginally suitable habitat occurs adjacent to project site, but species known from fewer than 10 occurrences.	April–June
FEDERAL OR STATE SPECIES OF CONCERN				
<b><i>Invertebrates</i></b>				
Monarch butterfly <i>Danaus plexippus</i>	--/*/--	Winters in eucalyptus groves; winter roosting sites protected by the state	<b>Low potential.</b> Suitable habitat exists adjacent to project site, but the species has not been documented as wintering at LBNL.	Winter
Bridges' Coast Range shoulderband snail <i>Helminthoglypta nickliniana bridgesi</i>	FSC/--/--	Inhabits open hillsides; prefers rock piles but can be found under tall grasses and weeds	<b>Low potential.</b> Marginally suitable habitat present in the project area, but all sightings in Berkeley Hills are historic.	Year-round
Ricksecker's water scavenger beetle <i>Hydrochara rickseckeri</i>	FSC/--/--	Specific habitat requirements are unknown; requires calm, shallow water of ponds and streams	<b>Low potential.</b> Suitable aquatic habitat is not present in the project area.	Unknown
Lee's micro-blind harvestman <i>Microcina leei</i>	--/*/--	Requires undisturbed rocks in native grasslands and woodlands	<b>Low potential.</b> Known to be present at LBNL in Blackberry Canyon. However, suitable habitat does not occur at the project site	Year-round
San Francisco lacewing <i>Nothochrysa californica</i>	FSC/--/--	Coastal scrub and woodlands	<b>Low potential.</b> May occur in intact woodland habitat near project site. Known to occur in Strawberry Canyon (Arnold, 1997)	January–July

**TABLE B-1 (CONTINUED)**  
**SPECIAL STATUS SPECIES CONSIDERED IN THE EVALUATION OF THE**  
**LBNL BUILDING 51 DEMOLITION PROJECT**

Common Name <i>Scientific Name</i>	Listing Status USFWS/CDFG/ CNPS	General Habitat	Potential for Species Occurrence Within the Project Area	Period of Identification
FEDERAL OR STATE SPECIES OF CONCERN (CONTINUED)				
<b>Amphibians</b>				
Foothill yellow-legged frog <i>Rana boylei</i>	FSC/CSC/--	Streams with permanent water and quiet pools absent of predatory fish	<b>Absent.</b> Suitable habitat is not present on the project site. No recorded occurrences within several miles of the project site.	April–June
Western spadefoot toad <i>Scaphiopus hammondi</i>	FSC/CSC/--	Grasslands or valley foothill hardwood woodlands with shallow temporary ponds for breeding	<b>Absent.</b> Project area streams do not provide suitable aquatic habitat for this species. Project site is not in species range.	Winter
<b>Reptiles</b>				
Western pond turtle <i>Clemmys marmorata</i>	FSC/CSC/--	Freshwater ponds and slow streams edged with sandy soils for laying eggs	<b>Absent.</b> Suitable habitat does not exist on the project site.	Year-round
California horned lizard <i>Phrynosoma coronatum frontale</i>	FSC/CSC/--	Patchy open areas with sandy soils	<b>Absent.</b> Potential habitat is not present in the project area.	Year-round
<b>Birds</b>				
Cooper's hawk <i>Accipiter cooperi</i>	--/CSC/--	Nests in riparian growths of deciduous trees and live oak woodlands	<b>Moderate potential.</b> Nesting habitat is available adjacent to project site. Observed with kill at Bldg. 49 site (ESA, 2003a).	March–July
Sharp-shinned hawk <i>Accipiter striatus</i>	--/CSC/--	Nests in riparian growths of deciduous trees and live oaks	<b>Moderate potential.</b> Potential nesting habitat is present on the North Fork of Strawberry creek, low potential to forage in and around project site.	March–July
Tricolored blackbird <i>Agelaius tricolor</i>	FSC/CSC/--	Riparian thickets and emergent vegetation	<b>Low potential.</b> Nesting habitat not present at project site.	Spring
Grasshopper sparrow <i>Ammodramus savannarum</i>	FSC/--/--	Dry, dense grasslands, especially with a variety of grasses and tall forbs and scattered shrubs	<b>Low potential.</b> Marginal habitat is present adjacent to project site, but species frequents more arid areas.	April–July
Bell's sage sparrow <i>Amphispiza belli belli</i>	FSC/CSC/--	Inhabits arid areas with low, fairly dense stands of shrubs, including chamise chaparral and coastal sage scrub	<b>Low potential.</b> Suitable habitat is present on the project site, but species frequents more arid areas.	Year-round
Golden eagle <i>Aquila chrysaetos</i>	--/CSC/--	Nests in canyons and large trees in open habitats; prefers to forage in habitat with dense ground squirrel populations	<b>Low potential. While suitable foraging habitat exists, nesting habitat is not present on-site.</b>	Year-round

**TABLE B-1 (CONTINUED)**  
**SPECIAL STATUS SPECIES CONSIDERED IN THE EVALUATION OF THE**  
**LBNL BUILDING 51 DEMOLITION PROJECT**

Common Name <i>Scientific Name</i>	Listing Status USFWS/CDFG/ CNPS	General Habitat	Potential for Species Occurrence Within the Project Area	Period of Identification
FEDERAL OR STATE SPECIES OF CONCERN (CONTINUED)				
<b><i>Birds (cont.)</i></b>				
Burrowing owl <i>Athene cunicularia</i>	FSC/CSC/--	Nests in mammal burrows in open, lowland grasslands; also uses man-made structures	<b>Low potential.</b> Suitable nesting habitat is not present at LBNL.	February–June
Oak titmouse <i>Baeolophus inornatus</i>	FSLC/--/--	Inhabits open oak woodlands and oak savannah	<b>Low potential.</b> Species is relatively rare on western slopes of East Bay Hills due to generally high density of oak habitat.	Year-round
Great horned owl <i>Bubo virginianus</i>	--/3503.5/--	Often uses abandoned nests of corvids or squirrels; nests in large oaks, conifers, eucalyptus	<b>Moderate potential.</b> Suitable nesting habitat occurs in eucalyptus and conifer stands adjacent to project site.	Year-round
Red-tailed hawk <i>Buteo jamaicensis</i>	--/3503.5/--	Usually nests in large trees, often in woodland or riparian deciduous habitats	<b>Moderate potential.</b> Suitable nesting habitat is present in stands of large trees adjacent to site. Observed foraging at LBNL (ESA, 2002a).	Year-round
Lark sparrow <i>Chondestes grammacus</i>	FSC/--/--	Inhabits sparse valley foothill hardwood, open mixed chaparral and brushy habitats, grasslands with scattered trees or shrubs	<b>Low potential.</b> Suitable nesting habitat is not present in the project area, as the canopy cover is generally too dense.	Year-round
Northern harrier <i>Circus cyaneus</i>	--/CSC/--	Most commonly found foraging over marshes and open fields. Nests on slightly elevated ground or in thick vegetation.	<b>Low potential.</b> Suitable nesting habitat is not present at the project site. May be occasional forager in open grasslands at LBNL.	Year-round
Olive-sided flycatcher <i>Contopus cooperi</i>	FSC/--/--	Inhabits open conifer or mixed woodlands; nests in large coniferous trees	<b>Moderate potential.</b> Suitable perching, foraging and nesting habitat is present adjacent to project site, but species relatively rare in East Bay Hills.	May-August
White-tailed kite <i>Elanus leucurus</i>	FSC/--/--	Nests near wet meadows and open grasslands, in dense oak, willow, or other tree stands	<b>Low potential.</b> Open foraging habitat is located near the project site; however, this species rarely seen in the Oakland-Berkeley Hills.	March–July

**TABLE B-1 (CONTINUED)**  
**SPECIAL STATUS SPECIES CONSIDERED IN THE EVALUATION OF THE**  
**LBNL BUILDING 51 DEMOLITION PROJECT**

Common Name <i>Scientific Name</i>	Listing Status USFWS/CDFG/ CNPS	General Habitat	Potential for Species Occurrence Within the Project Area	Period of Identification
FEDERAL OR STATE SPECIES OF CONCERN (CONTINUED)				
<b>Birds (cont.)</b>				
Pacific-slope flycatcher <i>Empidonax difficilis</i>	FSC/--/--	Warm, moist woodlands, including valley foothill and montane riparian, coastal and blue oak woodlands, and montane hardwood-conifer habitats	<b>Low potential.</b> Potential nesting habitat is located near the project site in Blackberry Canyon and other riparian areas at LBNL.	Summer
California horned lark <i>Eremophila alpestris actia</i>	--/CSC/--	Nests and forages in short-grass prairie, mountain meadow, coastal plain, fallow fields, and alkali flats	<b>Low potential.</b> Project site does not provide suitable habitat.	March–July
Merlin <i>Falco columbarius</i>	--/CSC/--	Breeds outside California, inhabits coastlines, open grasslands, savannahs, and woodlands	<b>Low potential.</b> May visit site in winter or during migration to breeding habitat outside California.	September–May
American kestrel <i>Falco sparverius</i>	--/3503.5/--	Frequents generally open grasslands, pastures, and fields; primarily a cavity nester	<b>Moderate potential.</b> Observed foraging at LBNL (ESA, 2003b). Potential nesting habitat available in cavities in mature oaks or pines adjacent to project site.	Year-round
Yellow-breasted chat <i>Icteria virens</i>	--/CSC/--	Nests in riparian corridors with willows or other dense foliage	<b>Low potential.</b> Suitable nesting habitat not present on or adjacent to project site.	March–September
Loggerhead shrike <i>Lanius ludovicianus</i>	FSC/CSC/--	Nests in shrublands and forages in open grasslands	<b>Absent.</b> Suitable nesting habitat is not present at the project area.	March–September
Lewis' woodpecker <i>Melanerpes lewis</i>	FSC/--/--	Nests in cavities of dead or burned out trees in open, deciduous, and conifer habitats with brushy understory	<b>Low potential.</b> Occurs rarely on the west side of East Bay Hills in oak woodland habitat in winter. Do not breed in California.	Winter
Rufous hummingbird <i>Selasphorus rufus</i>	FSC/--/--	Inhabits riparian areas, open woodlands, chaparral, and other habitat with nectar-producing flowers; breeding does not occur in San Francisco Bay Area	<b>Low potential.</b> May forage on the project site and in surrounding areas.	February–April
Allen's hummingbird <i>Selasphorus sasin</i>	FSC/--/--	Inhabits coastal scrub, valley foothill hardwood, and riparian habitats	<b>Low potential.</b> Trees and shrubs within riparian corridors provide potential nesting habitat. Suitable nesting habitat not present at project site.	January–July

**TABLE B-1 (CONTINUED)**  
**SPECIAL STATUS SPECIES CONSIDERED IN THE EVALUATION OF THE**  
**LBNL BUILDING 51 DEMOLITION PROJECT**

Common Name <i>Scientific Name</i>	Listing Status USFWS/CDFG/ CNPS	General Habitat	Potential for Species Occurrence Within the Project Area	Period of Identification
FEDERAL OR STATE SPECIES OF CONCERN (CONTINUED)				
<b>Birds (cont.)</b>				
Red-breasted sapsucker <i>Sphyrapicus ruber</i>	FSC/--/--	Breeds in coastal forests of Northern California and Oregon	<b>Low potential.</b> May occur occasionally and locally in winter, but does not breed in the area.	November–March
Bewick's wren <i>Thryomanes bewickii</i>	FSC/--/--	Inhabits chaparral, scrub, and landscaped areas; may also be found in riparian and edges of woodland habitats	<b>Moderate potential.</b> Preferred habitat is present throughout LBNL. Potential to nest in landscape shrubs and oaks on and adjacent to project site.	Year-round
California thrasher <i>Toxostoma redivivum</i>	FSC/--/--	Moderate to dense chaparral and scrub, open valley foothill riparian thickets	<b>Low potential.</b> Marginally suitable habitat is present at LBNL. No nesting habitat at project site.	Year-round
<b>Mammals</b>				
Pacific western big-eared bat <i>Corynorhinus townsendii townsendii</i>	FSC/CSC/--	Inhabits a variety of habitats, requires caves or man-made structures for roosting	<b>Low potential.</b> Suitable roosting habitat is not present on the project site, but the species may forage in the area.	April–August
Berkeley kangaroo rat <i>Dipodomys heermanni berkeleyensis</i>	FSC/--/--	Open, grassy hilltops and open spaces in chaparral and blue oak/gray pine woodland	<b>Low potential.</b> Marginally suitable habitat is present adjacent to the project area; however, this species is presumed extinct.	Year-round
Greater western mastiff bat <i>Eumops perotis californicus</i>	FSC/CSC/--	Breeds in rugged, rocky canyons and forages in a variety of habitats	<b>Low potential.</b> Suitable breeding habitat is not present in the project area, but the species may forage in the area.	March–August
Long-eared myotis <i>Myotis evotis</i>	FSC/--/--	Inhabits woodlands and forests up to approximately 8,200 feet in elevation; roosts in crevices and snags	<b>Moderate potential.</b> Suitable foraging and roosting habitat is present in the project area.	March–August
Fringed myotis <i>Myotis thysanodes</i>	FSC/--/--	Inhabits a variety of woodland habitats, roosts in crevices or caves, and forages over water and open habitats	<b>Moderate potential.</b> Suitable foraging and roosting habitat is present in the project area.	March–August

**TABLE B-1 (CONTINUED)**  
**SPECIAL STATUS SPECIES CONSIDERED IN THE EVALUATION OF THE**  
**LBNL BUILDING 51 DEMOLITION PROJECT**

Common Name <i>Scientific Name</i>	Listing Status USFWS/CDFG/ CNPS	General Habitat	Potential for Species Occurrence Within the Project Area	Period of Identification
FEDERAL OR STATE SPECIES OF CONCERN (CONTINUED)				
<b>Mammals (cont.)</b>				
San Francisco dusky-footed woodrat <i>Neotoma fuscipes annectens</i>	FSC/CSC/--	Forests with moderate canopy and moderate to dense understory	<b>Absent.</b> Although LBNL provides marginally suitable habitat for this species, it does not tend to occur in areas where human presence is high. Suitable habitat not present on or adjacent to project site.	Year-round
<b>Plants</b>				
Bent-flowered fiddleneck <i>Amsinckia lunaris</i>	FSLC/--/1B	Coastal bluff scrub, woodland, and valley and foothill grassland	<b>Low potential.</b> Marginally suitable habitat is present on the project site, but records from Oakland-Berkeley Hills are historic only.	March–June
Big-scale balsamroot <i>Balsamorhiza macrolepis</i> var. <i>macrolepis</i>	FSLC/--/1B	Woodland and valley and foothill grassland, sometimes on serpentine soils	<b>Low potential.</b> Marginally suitable habitat is present on the project site.	March–June
Mt. Diablo fairy-lantern <i>Calochortus pulchellus</i>	FSLC/--/1B	Woody and shrubby slopes of chaparral, cismontane, and riparian woodland, and valley and foothill grassland	<b>Low potential.</b> Marginally suitable habitat is present on the project site, but the species is not known from Oakland-Berkeley Hills.	April–June
Western leatherwood <i>Dirca occidentalis</i>	FSLC/--/1B	On brushy slopes and mesic areas of chaparral, riparian woodland and forest, and broadleaf or coniferous forest	<b>Low potential.</b> Suitable habitat is present on the project site. However, the species was not observed during site surveys (ESA, 2002 and 2003).	January–April
Round-leaved filaree <i>Erodium macrophyllum</i>	--/--/2	On clay soils in woodland and valley and foothill grasslands	<b>Low potential.</b> Marginally suitable habitat is present on the project site; however, most collections are historical (CNPS, 2005).	March–May
Diablo helianthella <i>Helianthella castanea</i>	FSC/--/1B	Broadleaf upland forest, cismontane woodland, chaparral, coastal scrub, riparian woodland, and valley and foothill grassland	<b>Low potential.</b> Marginally suitable habitat is present on the project site.	April–June
Fragrant fritillary <i>Fritillaria liliacea</i>	FSC/--/1B	Cismontane woodland, coastal prairie and scrub, valley and foothill grasslands, often on serpentine soils	<b>Absent.</b> Serpentine soils are not present on the project site. The species is unlikely to be found on other soils due to competition with non-native species.	February–April

**TABLE B-1 (CONTINUED)**  
**SPECIAL STATUS SPECIES CONSIDERED IN THE EVALUATION OF THE**  
**LBNL BUILDING 51 DEMOLITION PROJECT**

Common Name <i>Scientific Name</i>	Listing Status USFWS/CDFG/ CNPS	General Habitat	Potential for Species Occurrence Within the Project Area	Period of Identification
FEDERAL OR STATE SPECIES OF CONCERN (CONTINUED)				
<b>Plants (cont.)</b>				
Kellogg's horkelia <i>Horkelia cuneata</i> spp. <i>sericea</i>	FSC/--/1B	In sandy or gravelly openings of closed-cone coniferous forest, chaparral and coastal scrub	<b>Absent.</b> Suitable habitat is not present on the project site. Presumed extirpated in Alameda County (USFWS, 2005).	April–September
Large-flowered linanthus <i>Linanthus grandiflorus</i>	FSC/--/4	Cismontane woodlands, valley and foothill grassland, coastal scrub	<b>Low potential.</b> While habitat is marginal, the species was recently documented from Wildcat Peak (CalFlora, 2003).	April–August
Oregon meconella <i>Meconella oregana</i>	FSC/--/1B	Coastal scrub and prairie	<b>Low potential.</b> Marginally suitable habitat is present at LBNL. Known only from five occurrences, including Oakland East, Richmond, and Briones Valley quads.	March–April
Robust monardella <i>Monardella villosa</i> ssp. <i>globosa</i>	FSLC/--/1B	In clay or sandy soils of coastal prairie and scrub, and valley and foothill grassland	<b>Low potential.</b> Marginally suitable habitat is present on the project site.	June–July
Most beautiful jewel-flower <i>Streptanthus albidus</i> ssp. <i>peramoenus</i>	FSC/--/1B	Ridges and slopes with chaparral, valley and foothill grassland, and woodland; on serpentine outcrops	<b>Low potential.</b> There are no serpentine soils or outcrops on the project site.	April–June

**STATUS CODES:**

High potential = High to moderate quality habitat present and site within the geographic range; species is expected to occur.

Moderate potential = Habitat only marginally suitable, or habitat suitable but not within species geographic range.

Low potential = Habitat does not meet species requirements as currently understood in the scientific community and/or site not within currently known species distribution or range.

## FEDERAL: (U.S. Fish and Wildlife Service)

FE = Listed as endangered (in danger of extinction) by the federal government  
 FT = Listed as threatened (likely to become endangered within the foreseeable future) by the federal government  
 PE/PT = Proposed for listing as endangered or threatened  
 FC = Candidate to become a *proposed* species  
 FSC = Federal species of concern; may be endangered or threatened, but not enough biological information has been gathered to support listing at this time  
 FSLC = Federal species of local concern

## STATE: (California Department of Fish and Game)

CE = Listed as endangered by the State of California  
 CT = Listed as threatened by the State of California  
 CR = Listed as rare by the State of California (plants only)  
 CSC = California Species of Special Concern  
 \* = Species designated as "Special Animals" by the state  
 3503.5 = California Fish and Game Code Section 3503.5, Protection for nesting species of Falconiformes (hawks) and Strigiformes (owls)



**STATUS CODES (cont.):**California Native Plant Society

- List 1A=Plants presumed extinct in California
- List 1B=Plants rare, threatened, or endangered in California and elsewhere
- List 2=Plants rare, threatened, or endangered in California but more common elsewhere
- List 3=Plants about which more information is needed
- List 4=Plants of limited distribution

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SOURCES: CalFlora, 2003; CDFG, 2005; CNPS, 2005; USFWS, 2005; Zeiner et al., 1990.

***Special Status Species Descriptions***

The following are detailed descriptions of special status species determined to have moderate to high potential to occur in the immediate vicinity of the Building 51 demolition project.

***Cooper's hawk.*** Cooper's hawk ranges over most of North America and may be seen throughout California, most commonly as a winter migrant. Nesting pairs have declined throughout the lower-elevation, more populated parts of the state. Cooper's hawk forages in open woodlands and wooded margins and nests in tall trees, often in riparian areas (Ehrlich et al., 1988; Baicich, 1997). This species has been observed foraging at LBNL (ESA, 2003b); coast live oak as well as conifers and eucalyptus may provide nesting habitat for the species in the vicinity of the project site.

***Sharp-shinned hawk.*** Sharp-shinned hawk occurs throughout most of North America and is a resident species throughout California. Although this species was not observed during site surveys, coast live oak and non-native conifers in the vicinity of the project site, as well as the riparian corridor of the North Fork, may provide nesting habitat for sharp-shinned hawks (Ehrlich et al., 1988; Baicich, 1979).

***Red-tailed hawk.*** Red-tailed hawks are commonly found in woodlands and open country with scattered trees. These large hawks feed primarily on small mammals, but will also prey on other small vertebrates, such as snakes and lizards, as well as on small birds and invertebrates. Red-tailed hawks nest in a variety of trees in woodland and agricultural habitats. Large coast live oaks in the vicinity of the project site, as well as taller non-native trees such as eucalyptus and pine, may be used by red-tailed hawks for nesting. This species has been observed foraging at LBNL (ESA, 2002a, 2002b, and 2002c; ESA, 2003a and b).

***American kestrel.*** American kestrel have been observed foraging in grassland habitat at LBNL (ESA, 2003b). This relatively small member of the falcon family preys on small birds and on mammals, lizards, and insects. The kestrel is most common in open habitats, such as grasslands or pastures. American kestrels usually nest in tree cavities (Sibley, 2001; Erlich et al., 1988); coast live oak and conifers within the vicinity of the project site may provide this species with nesting habitat.

***Great horned owl.*** Great horned owls occur throughout North America and are found in a variety of wooded habitats. These large raptors prey on small to medium-sized mammals such as voles, rabbits, skunks, and squirrels. Great horned owls can often be seen and heard at dusk,

perched in large trees. They roost and nest in large trees such as pines or eucalyptus. They often use the abandoned nests of crows, ravens, or sometimes squirrels (Erlich et al., 1988; Sibley, 2000). Great horned owls may use large eucalyptus and pines located within the vicinity of the project site for roosting or nesting.

***Olive-sided flycatcher.*** Olive-sided flycatcher frequents a variety of forest and woodland habitats throughout most of California. Preferred nesting habitat includes coniferous and mixed hardwood-conifer forests. The species forages for insects over the forest canopy or adjacent grasslands and prefers tall conifers for both nesting and roosting. These flycatchers will often use the tallest trees in a locale for singing posts and hunting perches. Olive-sided flycatcher may make use of tall conifers and grasslands within the project vicinity for nesting and foraging purposes.

***Bewick's wren.*** Chaparral and scrub are the primary habitats for this insectivorous species, though riparian and woodland habitats with brushy understory, as well as urban landscaped areas, may also support Bewick's wren. Nests are located in cavities on the ground, in trees, or in man-made structures. Dense, shrubby vegetation provides cover and protection from raptors and other predators during foraging activities. This species may nest in oaks or landscape shrubbery on or adjacent to the project site.

***Fringed myotis.*** Fringed myotis occurs throughout California and is most frequent in coastal and montane forests and near mountain meadows (Jameson and Peeters, 1988). This species uses echolocation to find moths, beetles, and other prey and forms nursery colonies in caves and old buildings (Jameson and Peeters, 1988). Fringed myotis often use separate day and night roosts. Potential roosting habitat in the project vicinity consists of peeling bark in eucalyptus or oak habitat.

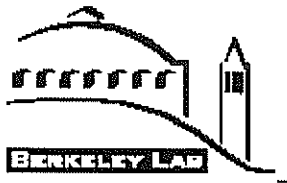
***Long-eared myotis.*** Long-eared myotis inhabits nearly all types of brushlands, woodlands, and forests, seeming to prefer coniferous forests and woodlands. Roosts include caves, buildings, snags, and crevices in tree bark. Caves provide night roosts. This species is highly maneuverable in its forays for arthropods over water, open terrain, and in habitat edges. Eucalyptus trees as well as oak woodland habitat in the project vicinity may provide potential roosting habitat for long-eared myotis.

## **APPENDIX C**

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Agreement between LBNL and  
DOE Berkeley Site Office,  
LBNL Implementation of DOE  
Metal Release Suspension (April 22, 2005)

Protocol for Survey and Release of  
Bevatron Materials (June 30, 2005)



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Ernest Orlando Lawrence Berkeley National Laboratory  
Environment, Health and Safety Division

Agreement between LBNL and DOE Berkeley  
Site Office  
LBNL Implementation of DOE Metal Release  
Suspension

Revision 1

Approved By: Phyllis Pei Date: 4/22/05  
Phyllis Pei  
Director, LBNL Environment Health and Safety Division

Approved By: Aundra Richards Date: 4/22/05  
Aundra Richards  
Director, DOE Berkeley Site Office

## **LBNL Implementation of DOE Metal Release Suspension**

The following implementation is in accordance with the July 13, 2000 memorandum issued by the Secretary, suspending the unrestricted release of metals from radiological areas for recycling into commerce. A fact sheet issued by EH-412 "Frequently Asked Questions on the Suspension on Release for Recycling of Metal from Radiation Areas" is used as the primary guidance. This implementation is subject to agreement between DOE-BSO and LBNL.

### **Scope**

The suspension applies to metals to be released for recycling from radiological areas on-site after July 13, 2000. At LBNL this is interpreted as the following:

Metals will not be released for unrestricted recycling into commerce from:

1. Controlled areas at accelerators where metals may have become activated by exposure to beams. Generally, these are buildings 6 (ALS), 51 (Bevatron), 56 (BIF), 71 (Hilac), 88 Cyclotron. As decommissioning and deconstruction (D&D) projects are initiated, specific boundaries within each of these facilities are defined. See the following attachments for details:  
Attachments 1 and 2: Bevatron
2. Contamination Areas (per 10 CFR 835)  
Affected are Building 75 Rooms 103 and 107 (NTLF); and the Building 88 Vault
3. Metals stored in other areas, which are known to have been used in or near accelerator beams, and have not been previously released.

### **Process**

Metals covered by the suspension will be surveyed according to the LBNL release procedures, EH&S Procedure 708 series. Release survey methods and criteria will not change at this time. If the metal is contaminated, it will be handled as radioactive material (held in a controlled area or disposed as radioactive waste.) If there is no detectable activity, the metal will be staged in a designated storage area and restricted from recycling into commerce until the suspension is lifted. At that time, any stored material that was subject to the suspension will be resurveyed as necessary and released in accordance with new DOE guidance.

Release procedures will be modified to implement this process. LBNL property management and salvage operations will be trained and their procedures modified as appropriate. LBNL will continue to pursue options for recycling of metals within the DOE complex.

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The following is not within the scope of the suspension:

The release (including public sales) of property or equipment for reuse for their intended purpose.\*

Disposal of property, such as transfer to a landfill.\*

Metal from other areas on-site, such as Radioactive Material Areas.

Note: Radioactive Material Areas are not Radiological Areas as defined in 10 CFR 835.

The recycle of non-metal material.

The recycle and reuse of excess property for use within the DOE complex.

Transfer of property for reuse by individuals licensed to use such material.

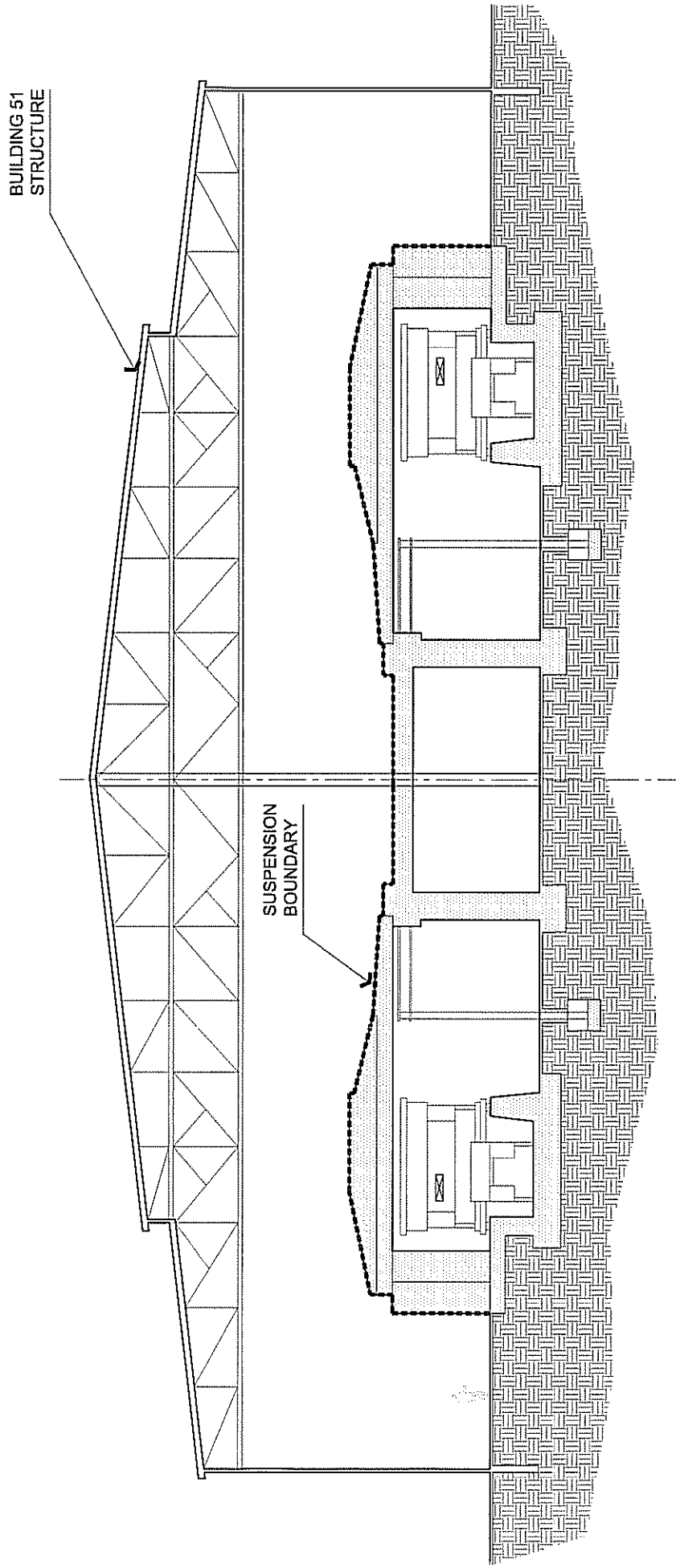
Property released or certified for release prior to July 13, 2000.

Rebar and other embedded metal materials in concrete that are not surface contaminated or volumetrically contaminated due to induced activity.

Property not covered by the suspension is still subject to all DOE requirements for control of property including DOE 5400.5 and associated guidance.

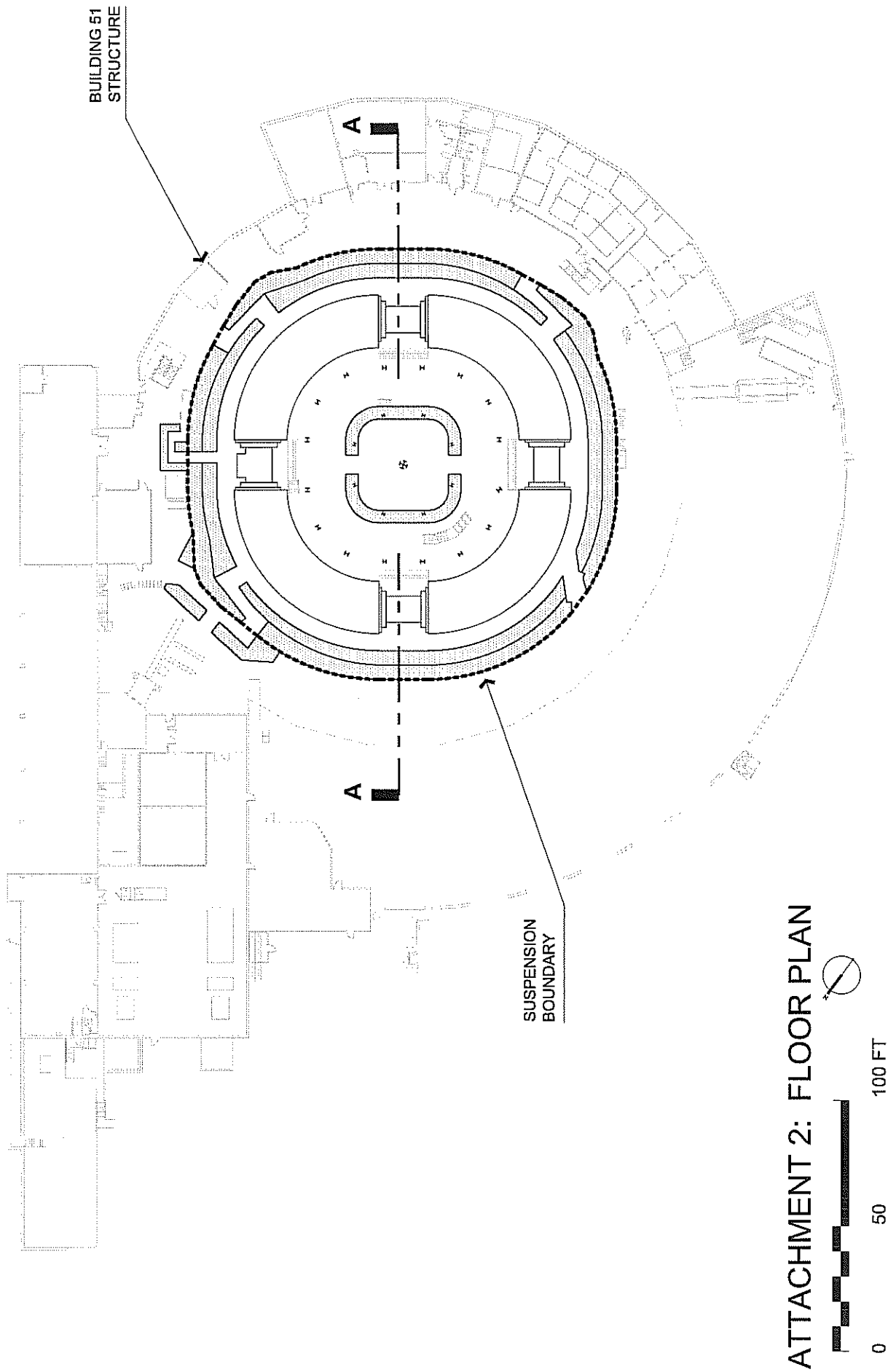
\* Good faith effort will be made by LBNL to assure that metals from the prohibited areas that are released for disposal or reuse for their intended purpose will not be recycled into commerce. Written agreement from the transferee will be required.

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ATTACHMENT 1: SECTION A-A





ATTACHMENT 2: FLOOR PLAN



## **APPENDIX D**

### **Noise Study for the Demolition of Building 51**

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# **NOISE STUDY**

for the

## **DEMOLITION OF BUILDING 51**

at

Ernest Orlando Lawrence Berkeley National Laboratory  
Berkeley, California

University of California

October 2003

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**PARSONS**

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## LAWRENCE BERKELEY NATIONAL LABORATORY

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### DEMOLITION OF BUILDING 51

#### Noise Study – Technical Memorandum October 22, 2003

##### Setting:

Building 51 of the Lawrence Berkeley National Lab (LBNL or Berkeley Lab) is located on Cyclotron Road within the City of Berkeley at the LBNL research facilities. LBNL is exploring the feasibility of demolishing this structure. The demolition of Building 51 would involve the use of various noise-producing pieces of equipment, and may result in a temporary increase of ambient noise levels in the surrounding areas. This report addresses whether or not significant noise impacts would occur at noise sensitive land uses near the project site during the demolition of Building 51, should this project be proposed and ultimately funded.

Figure 1 shows the position of Building 51 with respect to other LBNL buildings and sensitive receptor areas that were considered in this study. The topography in the project area contains many rolling hills and undulating terrain features, which have a substantial effect on the propagation of noise. The noise levels from demolition equipment would be dependent on factors such as distance, terrain features, atmospheric conditions, and whether or not a direct line-of-sight exists between the sensitive receptors and the noise producing equipment. Noise-sensitive land uses exist to the north, east, and west of Building 51. There are no sensitive land uses in the southerly direction that are close enough to be potentially impacted by the demolition noise. The nearest noise sensitive land use areas to Building 51 are shown on Figure 1. A description of each area follows:

**Area 1** – This area to the west consists of the Nyingma Institute (Buddhist facility) and single- and multi-family residences. This area is approximately 1100 to 1400 feet west of Building 51, and is approximately 160 to 250 feet lower in elevation. There is no direct line-of-sight between any of the residences or Buddhist facility and Building 51, due to intervening hillside terrain and building structures.

**Area 2** – This area to the north consists of single-family residences along Campus Drive, Olympus Avenue, and Summit Road. The nearest residences are located on Campus Drive approximately 1100 feet north of Building 51, and are approximately 270 feet higher in elevation. A partial line-of-sight exists between some of these residences and Building 51, although none have a completely unobstructed view due to the intervening terrain and building structure.

**Area 3** – To the east is the UC Berkeley Lawrence Hall of Science Museum, which is located approximately 1300 to 1400 feet away from Building 51. The Museum rests on a hillside approximately 350 feet higher than Building 51. No line-of-sight exists between Building 51 and the Museum itself due to the Museum's offset from the edge of the hillside. However, if a person stands directly in front of the 3.5-foot tall boundary wall at the edge of the hillside where the Museum property faces Building 51, a partial line-of-sight does occur. This wall is at the boundary of the Museum's outdoor

area where children often play on the Museum's outdoor fixtures. The fixtures themselves do not have a line-of-sight to Building 51.

Building 51B is being demolished as a separate and unconnected project, which would be completed prior to the demolition of Building 51. With Building 51B removed, the vacant land area would most likely be used as a staging area for the demolition of Building 51. Noise tests and calculations were performed to estimate the noise levels that would occur at the nearest noise sensitive locations in each of the three listed areas above. The noise associated with three project alternatives is addressed: Alternative 1 – dismantle and remove with no on-site rubbleing of materials; Alternative 2 – dismantle and remove with on-site rubbleing of materials; Alternative 3 – No project. The No Project alternative would not include any noise producing activities and therefore, noise analyses and assessments are not provided for that alternative. The following sections summarize the noise impact findings for Alternatives 1 and 2:

### **Methods and Measurements:**

Assumptions were made for the types of equipment to be used during various stages of demolition for the purpose of estimating noise impacts. Sound tests were conducted in the project area using an artificial noise source to measure how sound propagates from Building 51, through the complicated topography of the project area, and out to the sensitive receptors. The demolition equipment noise can then be predicted at the sensitive receptors by comparing the artificial noise level to the levels that would be produced by the demolition equipment.

An artificial noise source (ANS) was brought to the project site for the purpose of creating noise and measuring its propagation characteristics. The ANS consisted of two high power loudspeakers and amplifier system, and a "pink noise" generator as the type of noise to be created. Pink noise is a broadband noise with a full-spectrum of acoustic energy distributed across the audible hearing range. The sound of this noise is similar to static noise between FM radio stations, or TV channels which are "off the air".

Noise level data for construction and demolition equipment are typically measured at a standard distance of 50 feet. Therefore, the ANS system used for these tests also had to be measured at that same standard distance to provide a basis for making a comparison to the equipment noise data. The loudness of the ANS system was adjusted so that the artificial noise was approximately 95 dBA. This is approximately the same noise level as the loudest piece of demolition equipment that would be used for this project. In addition, the ANS was measured at six selected sensitive receptor locations around the project so that the acoustical effects of the terrain, building structures, and atmospheric conditions could be properly accounted for. Background ambient sound levels (without the artificial noise source) were also recorded at the selected measurement locations. Figure 1 shows the positions of the ANS system during the noise tests and the six measurement locations in the surrounding areas. Table 1 shows the measured levels at the selected receptor locations.

The measurement system used to obtain the noise levels was a Larson Davis Model 2900 Real Time Spectrum Analyzer (RTA), with a 1/2-inch Type 1 microphone and preamplifier assembly. The RTA system meets ANSI Type 1 specifications classifying it as a precision instrument. The RTA was calibrated by the manufacturer, and field calibrated immediately before and after the tests using an acoustic calibrator that is traceable to the National Institute of Standards and Technology. Atmospheric conditions such as wind speed, temperature, and humidity were recorded using a Kestrel 3000 Pocket Weather Meter. During the measurements, the skies were overcast and the relative humidity remained between 81 and 97 percent. Temperatures remained

very constant at all location between 58 and 59 degrees Fahrenheit. Wind ranged from a very slight breeze to as high as 10 mph in an easterly direction.

During the tests, the temperature and humidity had minor effects on the sound propagation. However, wind can have a very significant effect. When the wind is blowing from the noise source towards a receptor location, the noise level can increase over large distances by an average of 3 to 5 decibels (Ver, 1992). Conversely, the noise level will decrease when the wind is blowing from the receptor towards the noise source. The wind in the project area is predominantly an easterly wind from the bay, and would generally increase noise levels at locations east of the project site and decrease noise levels west of the project site. A brief description of the measurements at each location is provided below:

**Site 1** – This location was in the parking lot of the Nyingma Institute (Buddhist facility). The average background sound level during the daytime was relatively quiet at this location, approximately 54 dBA, with distant roadway noise as the only sources heard. The ANS was pointed in the direction of this area as shown on Figure 1, but at no time could the artificial noise be heard or measured by the instrument operator. This is due to the acoustic shielding provided by the intervening terrain and building structures. The wind was relatively calm during this measurement, which would result in very little attenuation due to wind at this location.

**Site 2** – This location is at a multi-family apartment building located at the north end of Highland Avenue. The average background sound level during the daytime was relatively quiet at this location, approximately 46 dBA with no distinct sounds heard. The ANS was pointed in the direction of this area as shown on Figure 1, but at no time could the artificial noise be heard or measured by the instrument operator. This is due to the acoustic shielding provided by the intervening terrain and building structures. The wind was relatively calm during this measurement, which would result in very little attenuation due to wind at this location.

**Site 3** – This location is at a single-family residence at the south end of La Vereda Road. The average background sound level during the daytime was relatively quiet at this location, approximately 44 dBA, with no distinct sounds heard. The ANS was pointed in the direction of this area as shown on Figure 1, but at no time could the artificial noise be heard or measured by the instrument operator. This is due to the acoustic shielding provided by the intervening terrain. The wind was relatively calm during this measurement, which would result in very little attenuation due to wind at this location.

**Site 4** – This location is at a single-family residence located on Campus Drive. The average background sound level during the daytime was relatively quiet at this location, approximately 54 dBA, with distant construction noise being heard intermittently at times. The ANS was pointed in the direction of this area as shown on Figure 1, and could be heard and measured by the instrument operator. The terrain creates a partial line-of-sight to the project area, which allowed the artificial noise to be audible. There was a slight easterly wind between 3 and 5 mph during this measurement, which resulted in a slightly higher noise level as opposed to calm conditions and therefore represents a worst-case noise impact scenario.

**Site 5** – This location is at a single-family residence located at the east end of Campus Drive (cul-de-sac). The average background sound level during the daytime was

relatively quiet at this location, approximately 52 dBA, with distant construction noise heard intermittently. The ANS was pointed in the direction of this area as shown on Figure 1, and could be heard and measured by the instrument operator. The terrain creates a partial line-of-sight to the project area (although less than Site 4), which allowed the artificial noise to be slightly audible. There was a slight easterly wind between 3 and 5 mph during this measurement, which resulted in a slightly higher noise level as opposed to calm conditions and therefore represents a worst-case noise impact scenario.

**Site 6** – This measurement location is at the UC Berkeley Lawrence Hall of Science Museum. The microphone was positioned above the 3.5-foot tall boundary wall at the edge of the hillside where the Museum property faces Building 51. A partial line-of-sight to Building 51 exists only at this wall, but not back away from it in the play areas or the Museum building. The average background sound level during the daytime was relatively quiet at this location, approximately 53 to 54 dBA, with light sounds heard from distant construction noise and children playing on the Museum's outdoor fixtures. The ANS was pointed in the direction of this area as shown on Figure 1, and could be heard and measured by the instrument operator. There was a moderate easterly wind between 3 and 10 mph during this measurement, which resulted in a slightly higher noise level as opposed to calm conditions and therefore represents a worst-case noise impact scenario. During the operation of the ANS, the instrument operator moved the microphone position to other locations on the Museum property including the outdoor play fixtures and near the west building façade of the Museum. However, the artificial noise could not be heard or measured due the acoustic shielding from the hillside boundary wall.

### **Calculations:**

All equipment operating within existing structures would be adequately shielded by the building structure itself. This is based on the following factors: First, the ANS tests were conducted with the noise source completely out in the open, but was audible at only 3 of the 7 locations in the surrounding areas. The location where the noise was most audible was Site 6, at the boundary wall along the edge of the hillside facing the project. The noise source was only 4 to 5 decibels above the existing background noise at that location, and was below the background noise at Sites 4 and 5 (refer to Table 1). Second, when the line of sight between a noise source and a receptor is interrupted by a wall or partial enclosure, it results in a minimum of 5 to 10 decibels of reduction in the noise level. This reduction can be 15 or more decibels when the source is fully enclosed. Reducing the source noise by this amount would eliminate any potential noise impact to the sensitive areas.

Therefore, the only demolition equipment considered for potential noise impacts in the surrounding areas are those that would be operating out in the open around Building 51 during different stages of demolition. Table 2 provides a list of typical demolition equipment and the measured noise levels that could be generated in one or both of the project alternatives. These data are based on actual measurements of these types of equipment conducted by Parsons on recent rail, highway, and pipeline construction and demolition projects (Alameda Corridor, 2000; Denver TREX, 2003; Los Angeles ECIS/NEIS, 2003).

A demolition noise scenario would consist of several pieces of demolition equipment from Table 2 operating simultaneously. Equation (1) shown below is used to calculate the A-weighted noise level at a sensitive receptor location for one piece of demolition equipment. The

A-weighting approximates the way that humans perceive sound and is used here in accordance with state and local standards. The total noise level is then calculated using equation (2). This combines the noise level of multiple pieces of demolition equipment that would operate simultaneously and adds the total to the background noise level at each sensitive receptor location.

$$NL_A = SPL_{DE-50} - SPL_{AN-50} + SPL_{AN-SR} \quad (1)$$

$$TNL_A = 10 \times \text{LOG}_{10}(10^{(NL1/10)} + 10^{(NL2/10)} \dots 10^{(NLn/10)} + 10^{(BGNL/10)}) \quad (2)$$

Where:

- NL<sub>A</sub> is the A-weighted noise level at a receptor location;
- SPL<sub>DE-50</sub> is the measured A-weighted noise level of demolition equipment at 50 feet;
- SPL<sub>AN-50</sub> is the measured A-weighted noise level of the artificial noise (ANS) at 50 feet;
- SPL<sub>AN-SR</sub> is the measured A-weighted noise level of artificial noise (ANS) at the sensitive receptor location;
- TNL<sub>A</sub> is the total calculated noise level at the sensitive receptor including simultaneously operating equipment and background noise;
- NLn is the calculated noise level of individual pieces of equipment at sensitive receptor;
- BGNL is the measured A-weighted background noise level.

The usage of demolition equipment would vary during various stages of the project. Three basic stages of demolition were developed for the purpose of noise prediction. The first stage would be for dismantling and removal of the buildings, shielding blocks and Bevatron yokes. The second stage would be for demolition of the foundation and substructure. The third stage would be a finishing stage for back filling, grading and compaction. Tables 3 and 4 show the assumptions for simultaneously operated demolition equipment during the three stages of Alternatives 1 and 2. These were used to calculate the total noise level at each receptor location based on equations (1) and (2), and the results are presented in Table 5.

### **Noise Standards:**

Significance criteria have been developed for the 1987 LBNL Long Range Development Plan (LRDP). The plan states that an impact of significance occurs when a project:

- generates noise that would conflict with local noise ordinances and standards, including State of California and local guidelines for long-term exposures, acceptable interior noise levels, and 24-hour average noise levels;
- proposes land uses that substantially increase noise levels in areas of sensitive receptors; or
- proposes land uses that are not compatible with the baseline noise levels.

The demolition noise would not generate any incompatible land uses, nor would it cause any long-term increase in the baseline noise levels of the project area since the noise aspect would end at the completion of the building demolition. The most restrictive of the various state standards

and local ordinances that apply to this project is the City of Berkeley's municipal code. The noise limits contained in the code achieve acceptable interior noise levels and 24-hour average noise levels which comply with the state standards. A summary of the municipal code pertaining to noise follows:

The City of Berkeley's municipal code contains a Noise Ordinance (Berkeley, 2003), which specifies restrictions for construction and demolition activities. The demolition of Building 51 would include the operation of scheduled and repetitive noise sources for 10 days or more. The noise ordinance specifies maximum noise limits shown in Table 6 for this type of noise.

Table 7 provides a comparison of the City of Berkeley noise limits with the calculated noise levels from the Building 51 demolition at each of the sensitive receptors. The demolition noise would not exceed the limits at any of the sensitive receptor locations. Therefore, no significant noise impacts would be expected for this project.

### **Conclusions:**

Should it be proposed and ultimately funded, the demolition of Building 51 would not exceed applicable LRDP or Program EIR standards of significance. It would not result in:

- exposure of persons at off-site locations to noise levels in excess of applicable standards.
- exposure of persons at off-site locations to excessive vibration levels.
- permanent increases in noise levels in the project vicinity.
- a substantial increase (temporary or periodic) in ambient noise levels in the project vicinity.

In addition, it would not be located within 2 miles of a public airport or public use airport, nor is it located within 2 miles of a private airstrip.



**Table 1. Measured Levels at Sensitive Receptor Locations**

<b>Measurement Location (See Figure 1)</b>	<b>Average Background Noise Level, dBA</b>	<b>Artificial Noise Source Level, dBA<sup>(1)</sup></b>
Site 1	54.2	not audible <sup>(2)</sup>
Site 2	46.2	not audible <sup>(2)</sup>
Site 3	43.7	not audible <sup>(2)</sup>
Site 4	53.9	53.5
Site 5	52.0	47.0
Site 6 (at wall)	53.5	57.4
Site 6 (15 ft. from wall)	53.0	not audible <sup>(2)</sup>

**Notes:** 1. Measured level was adjusted to exclude background noise.  
2. Artificial source could not be measured or heard.

**Table 2. Noise Levels of Typical Demolition Equipment<sup>(1)</sup>**

<b>Equipment Type</b>	<b>Measured Noise Level, dBA at 50 Feet</b>
60-Ton Hydraulic Boom Crane	77
Haul Truck	74
Flat Bed Truck	74
Front End Loader	74
ELPAR Transporter Truck	75 <sup>(2)</sup>
Large Fork Lift	76
Back Hoe	75
Hoe Ram Impact Hammer	96 <sup>(3)</sup>
Grader	75
Compaction Roller	74
Tracked Rock Crusher	83
Artificial Noise Source (ANS)	95

**Notes:**

1. Measurements conducted by Parsons on recent rail, highway, and pipeline construction and demolition projects (Alameda Corridor, 2000; Denver TREX, 2003; Los Angeles ECIS/NEIS, 2003).
2. Estimated.
3. This equipment contains an impulsive noise characteristic.

**Table 3. Simultaneously Operating Equipment Assumptions – Alternative 1**

Equipment Type	Quantity	Combined Noise Level of Demolition Equipment at 50 Feet, dBA
<b>First Stage</b>		<b>83</b>
60-Ton Hydraulic Boom Crane	2	
Large Fork Lift	1	
Flat Bed Truck	1	
ELPAR Transporter Truck	1	
<b>Second Stage</b>		<b>96</b>
Hoe Ram Impact Hammer	1	
Front-End Loader	1	
Back Hoe	1	
Haul Truck	1	
<b>Third Stage</b>		<b>80</b>
Back Hoe	1	
Grader	1	
Compaction Roller	1	

**Table 4. Simultaneously Operating Equipment Assumptions – Alternative 2**

<b>Equipment Type</b>	<b>Quantity</b>	<b>Combined Noise Level of Demolition Equipment at 50 Feet, dBA</b>
<b>First Stage</b>		<b>86</b>
60-Ton Hydraulic Boom Crane	2	
Large Fork Lift	1	
Flat Bed Truck	1	
ELPAR Transporter Truck	1	
Front-End Loader	1	
Tracked Rock Crusher	1	
<b>Second Stage</b>		<b>96<sup>1</sup></b>
Hoe Ram Impact Hammer	1	
Front-End Loader	1	
Back Hoe	1	
Haul Truck	1	
Tracked Rock Crusher	1	
<b>Third Stage</b>		<b>80</b>
Back Hoe	1	
Grader	1	
Compaction Roller	1	

<sup>1</sup> Under this alternative, which includes the tracked rock crusher, the noise level is the same as Alternative 1 (96 dBA) because the noise level is predominantly dictated by the operation of the hoe ram hammer. The combined total of all the remaining equipment is more than 10 dB below the hoe ram alone, thus the dBA does not increase when added all together.

**Table 5. Measured Levels at Sensitive Receptor Locations**

Measurement Location (See Figure 1)	Combined Noise Level of Demolition Equipment and Background Noise at Sensitive Receptor, dBA	
	Alternative 1	Alternative 2
<b>Site 1</b>		
First Stage	54 (not audible)	54 (not audible)
Second Stage	54 (not audible)	54 (not audible)
Third Stage	54 (not audible)	54 (not audible)
<b>Site 2</b>		
First Stage	46 (not audible)	46 (not audible)
Second Stage	46 (not audible)	46 (not audible)
Third Stage	46 (not audible)	46 (not audible)
<b>Site 3</b>		
First Stage	44 (not audible)	44 (not audible)
Second Stage	44 (not audible)	44 (not audible)
Third Stage	44 (not audible)	44 (not audible)
<b>Site 4</b>		
First Stage	54 (not audible)	54 (not audible)
Second Stage	57 <sup>(1)</sup>	57 <sup>(1)</sup>
Third Stage	54 (not audible)	54 (not audible)
<b>Site 5</b>		
First Stage	52 (not audible)	52 (not audible)
Second Stage	53 <sup>(1)</sup>	53 <sup>(1)</sup>
Third Stage	52 (not audible)	52 (not audible)
<b>Site 6 (at wall)</b>		
First Stage	54 (barely audible)	55 (barely audible)
Second Stage	60 <sup>(1)</sup>	60 <sup>(1)</sup>
Third Stage	54 (not audible)	54 (not audible)
<b>Site 6 (15 ft. from wall)</b>		
First Stage	53 (not audible)	53 (not audible)
Second Stage	53 (not audible)	53 (not audible)
Third Stage	53 (not audible)	53 (not audible)

**Notes:** 1. The demolition activities during this stage contain impulsive noise.

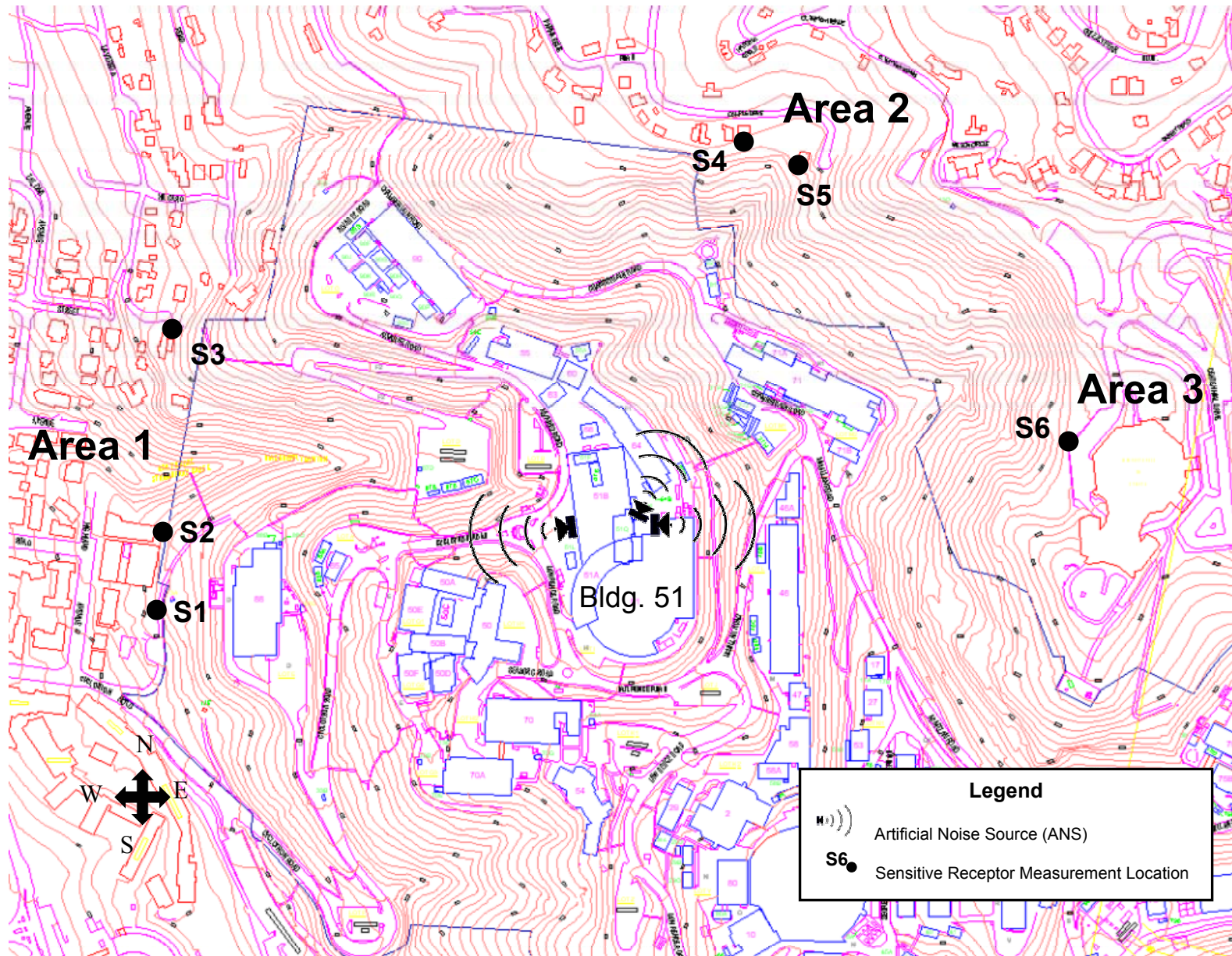
**Table 6. City of Berkeley Maximum Noise Limits <sup>(1)</sup>**

<b>Time of Operation</b>	<b>Single-Family and Duplex Residential (R1, R2)</b>	<b>Multi-Family Residential (R3, and above)</b>	<b>Commercial/Industrial</b>
Daily, 7 a.m. to 7 p.m.	60 dBA	65 dBA	70 dBA
Weekends and Legal Holidays, 9 a.m. to 8 p.m.	50 dBA	55 dBA	60 dBA

**Notes:** 1. The limits shown are the maximum allowable noise levels for construction/demolition noise.

**Table 7. Noise Impact Assessment at Sensitive Receptor Locations**

<b>Measurement Location (See Figure 1)</b>	<b>Weekday Noise Limit, dBA</b>	<b>Combined Noise Level of Demolition Equipment and Background Noise at Sensitive Receptor, dBA</b>	
<b>Site 1 (Zoned R4)</b>		<b>Alternative 1</b>	<b>Alternative 2</b>
All Stages	65	54	54
<b>Site 2 (Zoned R4)</b>			
All Stages	65	46	46
<b>Site 3 (Zoned R1)</b>			
All Stages	60	44	44
<b>Site 4 (Zoned R1)</b>			
First Stage	60	54	54
Second Stage	60	57	57
Third Stage	60	54	54
<b>Site 5 (Zoned R1)</b>			
First Stage	60	52	52
Second Stage	60	53	53
Third Stage	60	52	52
<b>Site 6, at wall (Zoned R5)</b>			
First Stage	65	54	55
Second Stage	65	60	60
Third Stage	65	54	54
<b>Site 6, 15 ft. from wall (Zoned R5)</b>			
All Stages	65	53	53



**Figure 1. Artificial Noise Source (ANS) Arrangement and Sensitive Receptor Measurement Locations**

**References:**

Alameda Corridor, 2000. Alameda Corridor Rail Construction Project, Noise and Vibration Control Monitoring for Construction and Demolition Operations, Conducted by Parsons, 1998-2000.

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